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THESIS

Marketing of Heavy Power Equipment in the Boston Area

by

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(S.B. Mass. Int. of Technology, 1944)

Submitted in partial fulfillment of
the requirements for the degree of

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Chapter I

INTRODUCTION

The subject of this paper is the Marketing of Heavy Power Equipment in New England. Because the title covers such a broad subject, it will be necessary to restrict the actual contents of this theme.

C. F. Philips says: "A study of marketing involves a consideration of all the business activities which take place in getting goods and services to the consumer, excluding such activities as involve a significant change in form."[1] Following this theory through, Philips classifies the marketing process as to "Marketing Functions".[2] These functions quite broadly and simply are as follows:[3]

A. Those functions involving change of ownership:

1. Selling
2. Buying

B. Those functions involving actual supply and distribution:

1. Transportation
2. Distribution
3. Storage

C. Those functions which help in the performance of the above:

1. Standardization and grading
2. Financing
3. Risk management
4. Market information

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[1] C. F. Philips, Marketing, Houghton Mifflin Co., 1938, Page 3.

[2] Ibid.

[3] Ibid.

While the definition as stated by Philips is a very comprehensive, certain of the functions are not considered important for the purpose of this paper. Marketing certainly includes those business functions that are involved in the flow of goods and services from the producer to consumer, but some of these functions are a matter of comparatively easy determination, or of standard performance. The subjects of traffic management, storage, financing, risk management, and standardization are of great concern in the marketing of most products, but are of lesser import in the heavy power equipment field. This will become more obvious from the following definitions as advanced by the National Association of Teachers of Marketing and Advertising.

> "Traffic management is the direction and control of all major physical movements of goods throughout the marketing process. Storage is the marketing function which involves holding and preserving goods between the time of their production and their use. Financing is the provision and management of the money and credit necessary to get goods from the producer into the hands of the consumer. Risk management is the assumption or avoidance of the danger of losing pecuniary value of goods during the process of marketing them. Standardization involves the determination of basic limits or grades and the establishment of model processes and methods of producing, handling, and selling goods." 1/

From these definitions it may be observed that the functions listed are more a matter of correct procedure and good judgement.

At any rate, any detailed discussion of the above specialized functions in the marketing process will not be found in this theme. The discussion will center around the functions of buying and selling, and the buyers and sellers themselves.

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1. Report on Committee of Definitions, The National Association of Teachers of Marketing and Advertising, Page 3.

Industrial goods are defined as those goods used in the production of other goods and services. Industrial goods are generally divided into five classes:

1. Installations, which are the major equipment of a plant.

2. Accessory equipment, which are the smaller machines that aid or are a part of the installation.

3. Operating supplies which are merchandise used in installations or by installations in performing a job.

4. Fabricated parts which are the individual or assembled parts that in themselves cannot perform a complete function, but in their assembled form aid an installation or machine, or are a part of it. Some form of fabrication has been performed in making the primary material a fabricated part.

5. Primary materials which are those materials used to make merchandise that go into finished products.

Heavy power equipment is an industrial good and as treated in this paper is subclassed as an "installation." Installations, as the major equipment of the plant, do not become part of the physical product produced, but are consumed after only repeated usage. Heavy power equipment is used to produce or in the production of mechanical or electrical energy. It also includes the very large accessory equipment which are installations in themselves and the heavy distribution equipment that is required to transmit the energy to the users. We shall describe the actual equipment items in Chapter II.

The market for this equipment and the people who market it have many unusual features such as:

1. Small number of customers constituting the market

2. Market is centralized

3. The equipment is large
4. Technical nature of goods
5. Marketing involves rendering of many services
6. Infrequent purchasing
7. Prevalence of direct selling
8. Organized purchasing

We will elaborate on these characteristics, briefly:

1. The market is characterized by the small number of customers. There is only one large utility serving the Boston area. This is true of most large cities. While smaller utilities and municipal stations use heavy power equipment, they use less of it and smaller sizes. This is also true of large industrials as only the large ones have their own power plants and distribution systems. All in all, the large utilities, small utilities, municipal works, and large industrials are actually an easy market to find because of their small numbers.

2. To go along with the above, the market is centralized. Large industry and cities usually go hand in hand, and since both are users of heavy power equipment, heavy equipment tends to be centralized in cities and near large industry. In addition there are very few large utilities and large industrials in less populated areas. This results in the centralization of heavy power equipment markets in industrial areas.

3. The equipment itself is large and generally bulky. It involves costly engineering and expensive materials and the combination of these factors results in large unit purchase. In money value, heavy power installations start in the thousands of dollars and range into millions.

4. The equipment is a tcehnical good involving the best technical minds in its design and the best engineering minds in its application and use.

5. Heavy power equipment involves the rendering of many services. Equipment manufacturers supply technical and testing services in solving power problems. They offer application of equipment services for fitting their equipment to customer's needs. They offer inspection and repair service for their equipment in use. Some manufacturers also offer consulting and planning services to help utilities and industrials make future plans.

6. Because every installation involves a large investment and because most installations involve more than one piece of large equipment, purchases are generally infrequent. They usually involve a major change or plant growth. Since this equipment generally has better efficiency in large sizes and is more economical per unit when purchased in large capacities, industrials and utilities have gone to larger and larger machines.

7. The cost, size, infrequency of sales, and necessity of service involved in the sale, all result in the prevalence of direct selling in the marketing of heavy power equipment.

8. At the same time, the purchasers of this equipment are large concerns. Because this equipment is extremely important to the operation of their concerns, they operate organized purchasing departments and organized purchasing. Many individuals are involved in these purchases and the buying motives are comparatively rational. The periods of negotiation are often long as there are a great many people concerned with the purchase and many factors to be considered.

This paper will, therefore, present the characteristics of this particular product which make it differ from ordinary industrial goods, and the marketing functions that differ because of these peculiarities.

The size and features of the market and the market trends will be shown. After this preliminary general discussion, the actual selling procedure and selling policies will be outlined. Selling techniques and salesman will be the subject of the following section. The importance and type of sales promotion and advertising will be presented.

It is important to view marketing from the other side of the fence, also, so that the functions of purchasing, and the buyer and user will be discussed. In the concluding chapter, sales aids, and the other market functions will be brought up with the problem of organizing for increased sales of installations. In the conclusion, it is hoped that certain suggestions can be made towards improved marketing techniques in the heavy power equipment field.

Information has been gathered from twenty odd published sources on industrial marketing and the selling and buying ideas in common acceptance for industrial products.[1] These procedures and beliefs are adapted to the marketing of heavy power equipment by the writer. Original and new information has been gathered from the practical experience of the writer in this field, surveys, and interviews, the results of which will be presented in the body of this paper. A few case histories will be cited to support marketing theories for this type of equipment.

The purpose of this paper is to present a general picture of the marketing of heavy power equipment in the Boston Area, and to obtain this, the deductive approach has been used, starting with the general problem of industrial marketing and applying this to heavy power machinery.

While the geographical area considered is Boston and vicinity, the approach and ideas for the most part are applicable to any comparable

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1. See Bibliography for publications consulted.

metropolis. Any special features that exist for this particular location only, will be carefully pointed out. In order that this treatise may have a more general appeal, reference to the Boston Area will generally be omitted. The only purpose in localizing the subject was to obtain some first hand field information.

Chapter II

HEAVY POWER EQUIPMENT AND ITS MARKET

Heavy power equipment may be divided into three classes: prime movers, accessory equipment, and switching and distribution equipment. The primary equipment is the prime mover. The actual machines are steam turbines, hydralic turbines, and diesel engines. Each converts a fuel (or a product of fuel in the case of steam) into mechanical energy. A steam turbine, fundamentally, is a large fabricated casing, enclosing a long heavy shaft with many stages of blades mounted circularly, perpendicular to the shaft. Steam is fed onto the blades through nozzles within the casing causing the blades and hence the shaft to rotate. The amount of steam entering the turbine is controlled by large valves often electrically controlled and often attached to complicated automatic regulating devices. The speed of the turbine is controlled by a governor. Power turbines for the purpose of this paper will be considered in sizes of 1000 horsepower and larger.

Hydraulic turbines are similar to steam burbines in principal. The blades, however, are much larger and the shaft is set in a vertical position. There is usually only one large stage, and the blades in large units can be ten feet in width and seventy-five feet in diameter and lager. Water is used instead of steam. The output of these machines is measured in horsepower and we will consider as power units only those having ratings of 1000 horsepower and more.

The diesel engine is a variety of the internal combustion engine using oil as a fuel. The diesel engine consists of a heavy cast iron block with four or more cylinders (in heavy power sized units) arranged in a line. In these cylinders are pistons which are attached at one end to connecting

rods and at the other end to a crankshaft. Diesel oil and air fed into the cylinder above the piston are exploded by high compression forcing the piston down in the cylinder and the connecting rod in turn to turn the crankshaft. Heavy power units will be considered as those having 1000 horsepower or more. There are other prime movers such as the "unaflow" engine which is a reciprocating steam engine and many others, but their use is special and in comparison with the ones mentioned above, their numbers are very few.

Connected to the above prime mover is generally a generator. The rotating energy to the prime mover is changed into electrical current in the generator. The common generator is a shaft with a mass of laminated iron and copper windings mounted concentrically to the shaft and this is called the rotor. The stator is fixed and is concentric to the rotor. The whole unit is held in a casing with end bells and bearings. Generators are rated as to output and this is generally measured in KVA. KVA is the symbol for Kilo-Volt-Amperes and one KVA is approximately equivalent to one horsepower.

Accessory equipment to the burbine consist of condensers for condensing steam from the turbine exhaust, and feedwater treating equipment to purify the water, deaerators to remove air from the water, and other items.

Generators do not themselves really have heavy accessory equipment, but there is heavy switching and auxiliary equipment involved in their use. Voltage regulators are used to regulate the voltage of the generator to the voltage on the "line". Circuit breakers are used to put the generator on the line or remove it and protect the line and generator against short circuits and overloads. Metering equipment is used to measure

the amount of power put out and the characteristic of the output and load. Circuit breakers and metering equipment are often mounted on switchboards for operation and convenience sake. These switchboards are often one hundred feet long or longer and may just have a panel on the front, or may be totally enclosed in metal cabinets commonly called "metalclad" switchgear.

Once power is generated it must be distributed. Over long lines power must be distributed at high voltages to cut down power losses and then be transformed to lower voltage to be used by consumers. The machine accomplishes this is called a transformer. In simple terms this consists of two iron cores one a primary and the other secondary. Each core is wound with "turns" of current carrying copper and the ratio of the turns on the primary to the number of turns on the secondary determines the ratio of voltage transformation. For heavy power equipment considerations we will only consider transformers of 1000 KVA capacity and more.

Heavy distribution equipment not only includes transformers but also switchgear. The heart of switchgear is the circuit breaker mentioned before and switchgear and switchboards are really synonymous. Switchgear, today, generally refers to "metalclad" units while switchboards refer to open boards that do not actually house instruments, meters, and circuit breakers. The switchgear or switchboards in the distribution circuit control the current, protect equipment and copper lines and measure current sent out on "feeders" and show the condition of the "feeder" on the system.

Other equipment that may be considered as heavy power equipment are boiler feed pumps, other large pumps, motors, rectifiers, large valves, large compressors and blowers, large transmission drives and substations, which are a combination of transformers and switchgear. Furnaces, boilers,

and heat exchangers are also included in heavy power equipment. For our discussion, we will refer to heavy power equipment and installations synonomously and these words will refer to any of the items we have mentioned with the exception of furnaces, boilers, valves and transmission drives which have somewhat different problems then the normal equipment. Furnaces and boilers in the large power field are largely constructed in the field unlike other factory made equipment. Valves and transmission drives are often purchased by one of the suppliers of other large equipment and this complicates (or simplifies in some cases) their marketing procedures. In general, with the exception just taken, most heavy power equipment is sold in the same way and has similar marketing procedure and policies. As a matter of fact the General Electric Company manufactures steam turbines, generators, transformers, switchgear, circuit breakers, motors, rectifiers, substations, etc. Westinghouse Electric Company builds all of these items and condensers also. Allis-Chalmers builds all of the above plus pumps, hydraulic turbines, large valves and more items. Worthington Pump Company and the Ingersoll Rand Company also have large lines, and all of these companies generally market their products as one line. This is the scope of heavy power equipment.

Now, we shall consider the users. The largest markets for these products are the public utilities. These include electric light and power companies, gas companies, telephone companies, and waterworks. Whether these companies be large or small they will require a certain amount of heavy power equipment. As the companies become larger they not only have larger installations but require more of them. The second group of users are the manufacturing industries which include the process metal working, machinery, textile, and lumber industries as well as many others. The third group of users are the construction industries consisting of

engineers and architects, construction companies, and shipyards. The fourth in the list of users are the transportation industries, as electric and steam railroads. Institutions, public and private, such as schools and hospitals, constitute the fifth set of users. The sixth group are government institutions.

This market is not only tremendous, but is growing in gigantic proportions as will be shown from the following figures from the Electrical World Survey of the electrical utility field in 1945.[1]

Output in 1945 was 222 billion Kw-hr or a capacity of 50 million Kw. More amazing than this was the new capacity added in 1945 which was 5.6 million Kw, more than an eleven per cent increase. The budget for construction expenditures for 1946 was more than double that for 1945 and was estimated at 895 million dollars, and this amount was exceeded only once in the history of the industry.[2]

Operations for the year 1945 are shown in Table I. They present an idea of which equipment is mort important. Of the approximately 50 million KW capacity of electricity, the Federal Power Commission estimated about 39 million Kw came from utilities and about eleven million Kw from industrials.

Table II shows approximately how expenditures in 1946 were divided.- The relative importance of distribution plants is to be noted. In 1946, industry was producing about one-third more goods than in 1941 but was using one-half more power. Westinghouse Manufacturing Company reported in 1946 that more than fifty-five large utilities had placed orders

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[1] Industrial Marketing Magazine, Vol. 31 - No. 13, October 16, 1946, Advertising Publications Inc., Page 203.

[2] Ibid., Page 203.

Table I

ELECTRICAL OPERATIONS 1945

(Figures for output in terms of millions KW-HR) 1/

		million KW-HR
Generated	222,367	
From steam	140,417	
From water power	80,150	
From internal combustion engines	1,800	

		thousand KW
Generator Rating-Capacity	49,901	
From steam	33,941	
From hydro	14,484	
From internal combustion engines	1,075	

Table II

ESTIMATED CAPITAL EXPENDITURES - ELECTRIC OPERATIONS 1946 2/

Total Expenditures	895,033,000
Fuel Stations	287,730,000
Hydro Stations	25,491,000
Transmission Plants	173,543,000
Substation Plants	117,951,000
Distribution Plants	358,136,000
General Plant	50,133,000

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1. Data from Electrical World Survey of Electrical Utility Field in 1945, *Industrial Marketing*, Vol. 13- No. 13, Advertising Publications, Inc., October 16, 1946, Page 203.

2. Ibid., Page 203.

Table III

GENERATOR RATING - CENTRAL STATIONS, MUNICIPAL, RAILWAY RAILWAY AND OTHER UTILITY PLANTS [1]

				General Capacity - KW in Plants					
				Water Power		Steam Power		Internal Combustion	
Division and State	No. of Companies	No. of Plants	Total Capacity KW	No.	Capacity	No.	Capacity	No.	Capacity
U.S.	1,688	3,923	49,901,280	1,508	14,884,098	1,078	33,941,306	1,337	1,075,876
New Eng.	111	313	3,196,561	222	894,071	68	2,280,385	23	22,105
Maine	21	81	332,024	63	246,517	7	82,240	11	3,267
New Hamp.	13	55	302,775	47	233,265	5	67,930	3	1,580
Vermont	20	71	175,639	63	161,397	6	13,550	2	692
Mass.	38	68	1,330,392	30	162,922	33	1,156,275	5	11,245
Rhode Is.	6	10	282,921	4	3,250	5	279,450	1	221
Conn.	13	28	772,810	15	86,720	12	680,990	1	5,100

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[1] Data from Electrical World Survey of Electrical Utility Field in 1945, Industrial Marketing, Vol. 31 - No. 13, Advertising Publications, Inc., October 16, 1946, Page 204.

in excess of one-half a million dollars each with delivery dates running into 1949 and estimated that by 1950 the total capacity would be 66,000,000 KVA, which would be a 30% increase over 1946 capacity.[1]

The Federal Power Commission estimated distribution of utilities and power capacity as shown in Table III. These figures show the relative unimportance of internal combustion engines for power generation in New England compared to the rest of the United States. They also show the relatively high percentage of steam power in Massachusetts compared to the rest of the New England States and even to the United States as a whole. They also point out that where there is a heavier concentration of power, as in Massachusetts and Connecticut, the size of the stations increase to a much larger extent than the number of stations.

Table IV shows an approximate breakdown of capital expenditures as to equipment listed. This is an approximate set of figures based on the 1939 census of manufactures.

The committee for Economic Development reported that the probable production of generators, distribution, and industrial appartus (including apparatus incorporated in manufactured products) would be $787,300,000 for 1947 or a 67.3% increase over 1939.[2] At any rate, more than a billion dollars was spent to build and keep in repair the power generating and distributing facilities of the country. This is a tremendous market and presents plenty of possibilities for investigation and analysis.

The next consideration is the demand characteristics for these products. The demand arises largely from new plant construction enlargement of old plants, and replacement of worn or absolescent equipment.

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1. Industrial Marketing magazine, Vol. 31 - No. 13, October 16, 1946, Advertising Publications, Inc., Page 203.

2. Ibid., Page 203.

Table IV

APPROXIMATE BREAKDOWN OF CAPITAL EXPENDITURES, FROM 1939 CENSUS OF MANUFACTURERS

Electrical Control Equipment	$46,040,000
Generators, Motors, and Motor-Generator Sets	46,850,000
Switchboards, Circuit Breakers, and Switchgear	76,983,000
Transformers Voltage Regulators	66,064,000

Purchases are made at infrequent intervals, and therefore their actual relation to seasonal trends and the other characteristics of commodities are somewhat harder to compute.

In general the forces affecting sales potentialities are:[1]

1. Secular trend
2. Seasonal trend
3. Cyclical trend
4. Random trend

The secular trend is a gradual long term movement. Industry is usually either expanding or declining. The trend is somewhat influenced by growth of population and improvements in the standard of living.

The seasonal trend is defined as the intra-yearly changes due to the characteristics of an industry at different times of the year. The cyclical variations are due from business passing back and forth alternately between prosperity and depression. The variations must be longer than twelve months. Random fluctuations are defined by Eastwood as the large number of unpredictable and incalculable factors.[2]

Before studying how the heavy power equipment demand responds to the various trends and business cycles, let us consider the demand itself. Power installations are a case of derived demand, as unless the customer demand for power is existant, there is no demand for the capital equipment to produce it. The "time factor" is particularly important in the case of capital goods.[3] As explained, power installations are a case

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[1] Eastwood, R. P., Sales Control By Quantitative Methods, Columbia University Press, 1940.

[2] Ibid.

[3] McNair, M. P. and Merriam, R. B., Problems in Business Economics, McGraw-Hill Book Co., Inc., 1941.

of derived demand. Therefore, the demand for this machinery changes with the expectancy of the investor for the future of power sales and the sums he makes available for such investment. If only minor fluctuations are expected, production can be taken up in the rate of operation of the machinery and the derived demand for installations is not affected. If the demand for power should fall off, the demand for power equipment also would drop way off, as the replacement basis is small enough to represent a tremendous curtailment in the market. The continued sales of power installations depends upon the continued increase in the market for power. "The capital goods case of derived demand is another instance of the time factor and appears wherever there is a marked difference in the life of the machinery and the life of the finished product."[1] Although the demand for raw materials and the demand for machinery are both derived, from the demand for the finished product, they respond very differently to increases or decreases in that demand.

Demand for heavy power equipment is comparatively inelastic. That is, small variations in price do not result in correspondingly increased or decreased demand for the machinery. As a matter of fact for the whole field, lowering prices does not broaden the markets as a rule. Of course, the individual producer may improve his position, temporarily, by a price reduction, but the total demand will not change materially.

Returning now to the cyclical fluctuations, heavy power equipment demand has increased many times over in the long term or secular movement. The use of power and power driven equipment is constantly rising. The demand for installations does vary to an extent with the seasonal trend, which was the second movement discussed. This occurs be-

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1. McNair, M. P. and Merriam, R. S., Problems in Business Economics, McGraw-Hill Book Co., Inc., 1941, Page 63.

cause most industries concentrate their important plant construction and heavy replacements during the lulls of the summer season. To-day, this is somewhat offset by long deliveries which means that it is very difficult to order at one time and expect to receive it at an exact time inthe future. Deliveries on large turbines, transformers, and other materials run three years hence and sometimes longer. In view of this, orders are placed years in advance, and, at present, at all times of the years. Delivery is generally preferred during the spring and summer months in this part of the country as there is always some construction and installation work involved and this can best be performed when the weather is temperate.

Demand for power installations, however, is more affected by the cyclical trend than any other factor. This is due primarily to two factors:

1. Sales are largely for expansion and increased load, or greater production.
2. Lowered production reduces the amount of wear and tear on all machinery.

In periods of prosperity, business men and utility leaders tend to be optimistic. Consequently, they often add to the size of their plants and install heavy pwoer equipment in order to take care of increased power required or anticipated increases in power demand. While this means that the downswing finds many utilities and industrials in an overexpanded condition; the upswing of the cycle results in large sales of power installations. However, as the demand which they envisaged not only fails to materialize, but actual sales begin to fall off, all desire to buy heavy power equipment vanishes, and what has already been installed is more than

ample to meet the decreased demand. Furthermore, not only is the life of such equipment under light usage vastly increased, but during times of depression, industry and utility use the machinery long after it otherwise would have been replaced. For example, considering the whole industrial machinery picture, of which heavy power equipment is only a part, it has been estimated that the business recession beginning in 1929, had, by 1934 built up a delayed demand for machinery of over 18.5 billion dollars.[1] From this estimate we can see that the stage is set for increased purchases of heavy equipment when the business cycle turns upwards. Again considering the whole industrial machinery picture as a gauge, the production of heavy machinery in this country was over 16.6 billion dollars before the depression, but during the depression this figure fell to 2.75 billions.[2] From this it is easy to see that in general terms the heavy power equipment industry rises and falls sharply with cyclical trends as shown in Table V.

The random trend, as previously defined, does not allow for much clarification with regard to heavy equipment. Some of the random trends are due to technological changes, government buying, introduction of new processes, etc.

As the concluding element to this general discussion, a consideration of the general price policy is appropriate. First of all, heavy equipment producers mostly follow a policy of staying with competitors and the industry as to prices and terms. In this field, there is considerable evidence that suggests that most of the manufacturers set their prices by the leading firm in the industry.[3] This leadership may be more or less

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1. C. F. Philips, Marketing, Estimate of machinery and Allied products Houghton, Mifflin Co., 1938.

2. Ibid.

3. Ibid.

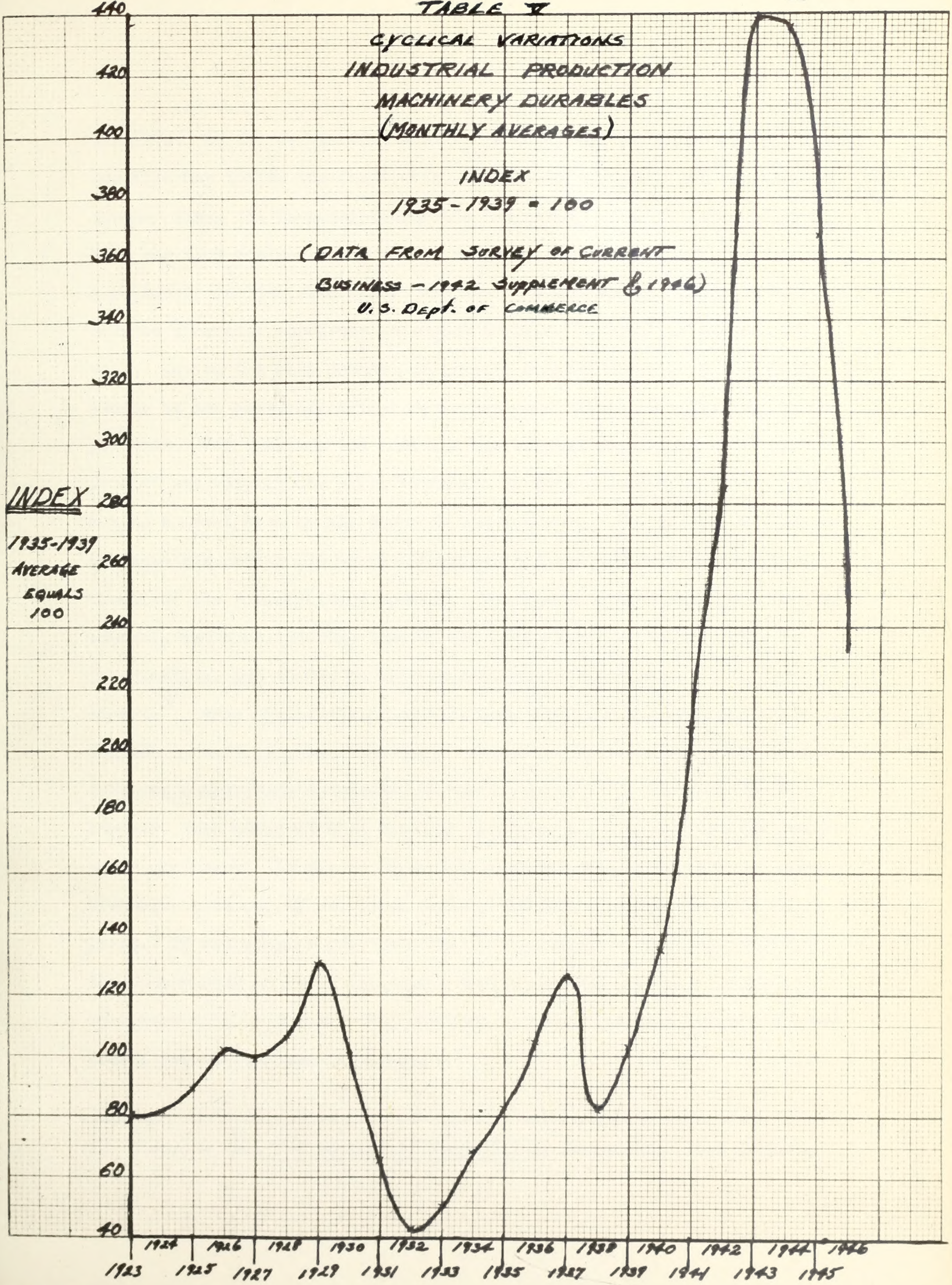

TABLE V

CYCLICAL VARIATIONS
INDUSTRIAL PRODUCTION
MACHINERY DURABLES
(MONTHLY AVERAGES)

INDEX
1935 - 1939 = 100

(DATA FROM SURVEY OF CURRENT
BUSINESS - 1942 SUPPLEMENT & 1946)
U.S. Dept. of COMMERCE

EUGENE DIETZGEN CO. NO. 346

absolute. As far as the time element is concerned in the change of prices, one firm may follow the leader very closely one time and not closely at another time. It is possible for the leadership to shift between firms. When one firm dominates the field, however, it can often keep prices of competitors in line, because it may have the necessary production capacity and the financial resources to engage in price cutting and enforce its will. During the past decade and longer, General Electric has been the leader in the heavy electrical power equipment field as well as in large turbines. For sometime the industry has enjoyed comparatively "fixed prices" and very little price cutting. To have a leader in such a field may be a great boon to all those in the industry. In general, the leader can maintain prices and hence a reasonable margin of profit for all, by threat of its "disciplinary powers". The leader's resources give it this control, and most industry leaders are very willing to assume this role. In actuality, the leader is only able to rely on his competitors within limits.[1] When his prices allow too large a margin the ever present temptation to "cut prices" becomes a practice and the possibility of attracting competitors sometimes becomes a reality. It has been found, however, that price cutting does not increase the total market for heavy power equipment. It may in some cases increase the share that one manufacturer gets out of the total market, but this tendency is very short lived. If one manufacturer cuts the price, others soon follow suit and the only result of this policy is a smaller margin for all. Therefore, this more or less informal "maintaining of price" program results in some profit for all the manufacturers.

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1. Burns, A. R., The Decline of Competition, McGraw-Hill Book Company.

> "Where the industry is contracting and the leader's share of business is declining, its absolute volume of business must be declining faster than that of rivals. Rivals must be protecting themselves against the general decline in demand either by price cutting (indicating limited acceptance of price leadership), by the offer of a better quality of product (indicating indirect or disguised price competition), or by expenditure upon the promotion of sales...... The leader presumably expects that the maintenance of prices will be profitable even though the leader must carry more than its proportionate share of the restriction of output necessary to support its price policy." 1/

Other factors to be considered in an industry dominated by one company are: 2/

1. Ability of leader to accept increasing business in a more rapidly expanding industry.
2. Ability of the leader to compete in production costs.
3. Ability of the leader to perform other marketing functions better than rivals.

The second point in the general price policy of the industry is that all follow the "one price policy". Prices to customers vary only on well defined and publicly announced principles. On transformers, an industrial and utility may have a different discount based on amount of annual purchases. In general on the larger sized installations, prices are the same to all buyers regardless of quantity or amount of purchasers. Educational and government institutions sometimes receive special discounts. Other than this, trade discounts and quantity discount are very uncommon.

The third factor in the general price policy is the matter of terms. Cash discounts are not given. The use of list prices is also very

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1. Burns, A. R., The Decline of Competition, McGraw-Hill Book Company.

2. Ibid.

infrequent and most prices are quoted at net thirty days. In some cases where credit is crucial other terms are agreed on between the manufacturer and customer. One of the older but commonly accepted set of terms is: [1]

60% when shipped or when offered for shipment.

20%, 30 days after due date of first payment.

20%, 60 days after due date of second payment.

There are exceptions to the terms just mentioned. In cases of very large installations, payments while the machine is in the process of manufacture are very common. Sometimes payments are even required when the order is placed to cover tremendous expenditures for raw materials. Also, for these very large pieces of equipment part of the sale price is often reserved for payment upon satisfactory completion of "performance tests". This means that ten or fifteen per cent of the final price of machine may be set aside until the machine is erected at the final sight and satisfactorily meets guaranteed standards or a certain performance as agreed on in the original contract.

In the cases of the poorer credit risks, more stringent terms are often required. Since the users of very heavy power equipment are usually large public utilities or the bigger more successful industries, credit risks and losses are not a big factor.

We have now considered the various machines that constitute heavy power equipment and why we can consider the sales of the whole group as one marketing problem. We have discussed the general case of demand as well as the business trend effects on the sales of heavy power equipment. And finally, we have indicated the elements of the general price policy.

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1. Interview with A. W. Sullivan, Ass't Purchasing Agent, Boston Edison Company, February 11, 1948.

We are now prepared to present the characteristics of the selling program as used in marketing heavy power installations.

Chapter III

CHARACTERISTICS OF THE SELLING PROGRAM AS USED IN MARKETING HEAVY POWER EQUIPMENT

Fundamentally, goods are sold in one of three ways: [1]

1. By inspection, - that is, the purchaser views the goods and then purchases. A typical illustration is a department store or grocery store where merchandise is sold "by display".

2. By sample, - that is, the purchaser views a sample and assuming the lot of merchandise to be more or less homogeneous buys on the basis of the quality, size or other characteristics of the sample. This form of selling is used to sell leather, crushed stone, fabrics and other such products.

3. By description, - that is, the products are described by specifications or other standards and possibly illustrated by pictures, and the purchaser buys on the basis of the correct representation in the description.

Of course, sales can be consummated through a combination of any or all of the above mentioned procedures. In general, heavy power equipment is sold by description. Explicit specifications are usually issued by the purchaser or his consulting engineer. Sometimes, the vendor will be asked to draw up the specifications for the equipment and in connection with this, the purchasers may wish to inspect similar installations which the seller is usually very anxious for him to do. Heavy power installations may, therefore, be sold by a combination of inspection and

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[1] Hotzclaw, H. F., The Principles of Marketing, Thomas Y. Crowell Co., 1936.

description. To further clarify the types of sales, we may differentiate six kinds.[1]

Outright sales are sales that are made for a definite amount which is considered final, and the product is one that is clearly defined. The usual outright transaction is the one where the possession and ownership are exchanged for the purchase price at the time of the sale or within a very short time thereafter. There is a variation of the outright sale which is the "sales on contract for future delivery". With this method of sale the commodity is delivered at a future date. The transaction, however, is considered for cash when the product is delivered at the shipping point. In connection with a sale on contract for future delivery, if the shipping date is months or even years in the future, and if the cost picture is fluctuating and prices are very likely to increase, escallation clauses are sometimes affixed to the contract. These escallation clauses allow the seller to increase the price (usually within certain specified limits) according to certain indexes or standard prices. These, however, are special cases of the outright sale.

The second kind of sale is known as an F.O.B. sale. The abreviation stands for "freight on board", but in todays' usage the phrase means sale at point of origin. In applying the F.O.B. term, it is interpreted that the price applies at the point of shipment and the seller transmits not only possession, but also ownership of the goods at that point. The buyer assumes all the risks of damage in transit which are not due to the negligence of the shipper. If the sale is made F.O.B. freight allowed, the seller pays the freight, otherwise the purchaser is responsible for this payment, also. In either case, however, the price is agreed upon be-

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1. Holtzclaw, H. F., The Principles of Marketing, Thomas Y. Crowell Co., 1936.

fore delivery is made. The mode of transporation can be truck, boat, rail, or air.

The third kind of sale is the joint account sale in which the buyer and seller agree to pool their knowledge of marketing and products and to divide expenses and profits (or losses) after the sale has been made.

The fourth type of sale is called the sale in transit, which is the complying with market requirements in the finishing of a product in transit. Since this is not applicable to heavy power installations, no consideration will be given to this form of sale. The fifth variety is the sale on consignment basis. This consists of placing the merchandise in the hands of a middleman for the purpose of selling at the highest possible price. The sixth form of selling is the auction sale. Goods are offered at public or private sale to the highest bidder. Sale in transit, consignment selling, and auction sales are not used in marketing power installations but the other three varieties are common. Outright sales, for heavy power equipment, are becoming more infrequent since most installations must at least be fabricated to order and in most cases even designed to some extent to the particular application. The most common sale, therefore, for power installations is the F.O.B. type on contract for future delivery. Since the transportation expense may be considerable on a major installation, most manufacturers have adopted the policy of allowing (paying) the freight to the nearest freight platform at first destination. The equipment is sold F.O.B. factory and the purchaser assumes the risk of damage in transit, although the shipper usually accepts this responsibility. This policy has been adapted in order to clarify quoted prices and not confuse the purchaser with the hidden item of transportation expense. This "freight equalization" has allowed the purchaser to compare bids without predjudice

to a manufacturer located a great distance away from the final destination of the installation. A few products, such as boiler feed pumps are still sold without a freight allowance. Turbines, boilers, large blowers and a few other large products are often sold "erected". This means that the seller not only pays the freight but actually accepts the responsibility of placing the equipment at the site and installing it. This is often true where guarantees or performance tests must be met before final payment is made. In general we may consider heavy equipment as an outright sale for future delivery with terms of F.O.B. factory and freight allowed to the first final destination.

Selling can be accomplished in several different ways. The method used for heavy power machinery is personal selling augmented by advertising. The size, cost, and complicated nature of the product is such that mail order or other indirect forms of selling are not applicable. We can further classify the sales of heavy power equipment by the distribution used in its marketing. The first type of distribution is through functional middlemen who act as agents of the producer but do not take title to merchandise. The second method and the one that predominates in the field is the direct sale from the producer to the user. This means that the salesman who contacts the customer and consummates the sale are employees of the manufacturer and operate out of the producer's district, home, or branch office.

The individuals who accomplish this first type of distribution are known as manufacturer's agents. Frederick defines a manufacturer's agent as an individual or firm selling part of the output of a certain manufacturer with whom continuous relations are maintained. 1/ These agents

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1931.

usually cover a more or less limited territory in which they have exclusive rights for the products they represent. The manufacturer's agent works on a commission basis and has little to say regarding prices or terms of sale. His principle function is selling. He often represents a supplementary line of non-competing products. Therefore, he is actually the sales representative of these manufacturers. He very often has an exclusive arrangement with the manufacturer to cover a specific area. There are comparatively few manufacturer's agents in heavy power installation marketing. A few of the manufacturer's agents on heavy power equipment in the Boston Area are listed below:

1. J. J. Costello Co.	Pennsylvania Transformers ITE Switchgear
2. J. W. Johnston	Allis-Chalmers Transformers (Pittsburgh Transformers)
3. Hayes Pump & Machinery Co.	Byron Jackson Pumps
4. Gustavo Preston Co.	Pennsylvania Pump & Compressor Company
5. Turbine Equipment Co.	De Laval Centrifigal Pumps & De Laval Compressors & Pumps
6. Starkweather Engineering Co., Inc	Morrish Machine Works

Frederick lists a number of advantages of using manufacturer's agents for distribution:[1]

1. The use of manufacturer's agents eliminates branch office

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934, Page 54.

expenses. The agent pays all his expenses and the only remuneration is the commission on a consummated sale. Hence a manufacturer does not waste money on unsuccessful sales.

2. The manufacturer's agent is an independent business man and it is to his advantage to stimulate the sales for his principal's products; otherwise his own income suffers. He has an incentive to produce sales.

3. The manufacturer's agent is in a position to keep in regular contact with buyers in his territory, since he usually has a number of lines of products to sell. A lead developed for one manufacturer whom he represents may result in the obtaining of orders for his other products.

4. The manufacturer's agent is frequently able to quote on and sell combined contracts covering a wode range of products.

5. The manufacturer's agent can more easily build up acquaintanceship in the field than can a salesman who must cover a large territory and who must specialize in one line.

These are the advantages of using the manufacturer's agents and now here are some of the disadvantages: [1]

1. The manufacturer's agents must be paid enough to cover his inputed salary and expenses. In view of this, a manufacturer's agent may not travel to his more distant potential customers unless reasonably sure of an order. As a result many good leads may not be followed up.

2. In many cases the manufacturer's agent is too independent to completely carry out the policies of the manufacturer. They often follow the path of least resistance and follow up only accounts offering the easiest, most profitable and immediate results. They may also cut their commission to cut a price, thus interfering with the manufacturer's policy.

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1. Frederick, J. H., Industrial Marketing, Prentice-Hall Publishing Co., 1934.

3. A manufacturer's agent may attempt to carry too many or too wide a range of products resulting in too little selling attention to all products or at least too little effort to sell some of the products.

4. Sometimes a producer may lose a sale by the agent including his product in a general contract for many kinds of machinery, and the whole proposition may not be desirable.

5. A manufacturer's product sales are dependent on the acceptance of the agent. A lot of sales may be lost if he is not popular with some customers. Most heavy power equipment is sold directly by manufacturers' salesman, in the Boston Area, for five reasons: [1]

> 1) The small number of potential users to whom we must sell. In the Boston Area there are only two large utilities, two medium size utilities, and about a dozen small municipals. There are quite a number of large industrials but their needs are smaller and their purchases less frequent.
>
> 2) There is a large average unit sale. Installations range from a few thousand dollars to more than a million dollars for each sale.
>
> 3) The market is concentrated geographically. As we have shown, the heavily populated centers usually have more utilities and more industrial prospects.
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> 4) Along with this concentration, geographically, we have also shown that the utilities and industries are larger in highly populated areas. Most all of the heavy power equipment customers are large and well

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1. Elder, Robert F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1934.

rated customers.

5) The marketing of these installations requires considerable technical advice in making the application, sale, or installation. This characteristic of heavy power equipment requires factory trained engineers to make the sales, and often even requires aid from factory specialists. In view of this, the manufacturer wishes to have complete control over his sales and this can be accomplished more thoroughly through the use of their own employees. This is one of the major advantages of direct selling by the manufacturers own personnel.

Further reasons for using the method of direct sale for distribution are that most manufacturers of heavy power equipment produce a wide line of machinery which can be sold through the same outlets. They can, therefore, afford to sell through their own salesman. The cost of selling is offset by the product being large and expensive. Still another reason for the prevalence of the direct sale is the requirement of a large amount of engineering service and the considerable technical advice necessary to make repairs.

Heavy power equipment is generally sold from description in the form of a proposal and specifications and the sale is an outright sale on a contract for future delivery, F.O.B. the factory of manufacture with freight paid to the destination by the producer. Furthermore, the sale is usually made directly by a salesman in the employ of the manufacturer. Power installations, in particular, have other characteristics in connection with their sale. The salesman, as we have indicated, must be engineers or well versed in engineering principles in order to under-

stand customers problems and to correctly apply the equipment. This, in itself, differentiates the heavy power equipment salesman from the usual vendor.

In order to comprehend the marketing of this machinery, a typical case in procedure will be illustrated. An active and good sales engineer will call frequently on the larger industrials and utilities assigned to him. The first step in a typical job will be the suggestion by the customer of a power problem. Suppose, for example, the customer, a utility, has had complaints, in a certain area, of lights dimming for short periods. He may also have his industrial customers complaining of motors slowing up at times. The utility engineer knows that these complaints come from dips in the voltage. This means that where these phenomena occur the voltage regulation is poor. There are many possible solutions to this problem. For instance, if the "feeder circuits" are short, regulation of the bus at the station or sub-station (if a sub-station is feeding the circuit) might be the best place to regulate the voltage. If this is the case, there are still several possible alternates. If a new load addition is being made or the addition of transformers is desirable, a "tap changing under load" transformer may be the best answer. If the transformer capacity is adequate or the addition of transformer action is unnecessary, a "regulating transformer" or a large three phase regulator may be the answer. If, however, the feeder circuits are long or the voltage drop at a point on the feeder circuit is large, it may be more practical to regulate the voltage near the load. Here, again, there are several ways to proceed. Two single phase regulators in closed delta may be employed or even three single phase regulators. Another solution would be a three phase regulator or the entire voltage problem may be related to a poor power factor and this would result in a new approach and

and entirely different equipment.

In order to cope with this problem, it is easy to see that the vendor must have a complete knowledge of electrical power distribution and a comprehension of what his equipment will do and how to apply it to best advantage. After the salesman has gone over the problem with the utility planning engineer or the utility's design engineer, he may make recommedations or take the problem back to his office to analyze with his specialists on these problems. He may also, write up the problem and send it to his factory for the engineers at the home plant to study. This period of preliminary discussion may last a few days or many months. It is of the utmost importance for the sales engineer to get in on this phase of the transaction, as the help and service he is able to give the buyer and his engineer may very well be the deciding factor in the final purchase. It also gives the vendor the chance to influence the type of equipment to be purchased to a variety that he manufactures or that he is a leader in. In view of the aid that he has given in selecting the correct equipment answer, he may be given the chance to draw up or help draw up the final specifications used in the actual request for bids.

At any rate, the final specifications are drawn up, and in general, they are sent in a written form to potential suppliers. Usually a few weeks are allowed for the manufacturer to submit the price, delivery, and specifications of the equipment he is offering. After quotations are received by the buyer, a period of negotiation follows. The factors that are considered during this period will be the subject of another chapter, but this is the time furing which the salesman tries to convince the buyer that his product is better in some way than his competitors. These negotiations which may center in the engineering, purchasing or administrative section may last a few days or a few months. In the end, an order

is awarded, or sometimes the purchase is posponed, or it is decided to buy entirely different equipment which starts this procedure all over again. This, in general, is the way a heavy equipment sale takes place. Of course, in as general an outline procedure as has just been presented, none of the special problems or intracies of the actual situation are included, but it was deemed desirable at this point to present at least a general picture of how a heavy power transaction comes about. More specific problems and cases will be taken up in subsequent pages.

We have just shown how the salesman may enhance his position and that of his manufacturer by engineering service. Sales of this equipment are often made in other ways. He may be the low price bidder, and may be awarded the contract on this basis. In the offering of contracts by municipal electric utilities, and water works, publicly owned transportation systems, and government institutions, the bidder submitting the lowest price and completely meeting the specifications is generally selected to supply the equipment. The reason for this policy is to circumvent politics and favoritism in the purchasing and so that purchases can be more easily justified. During periods of lesser business activity, price becomes increasingly important and a great deal of "bargaining" and "trading" take place between the vendor and the purchaser. Equipment is often awarded to a bidder on the basis that his equipment is easier to maintain, or is of higher quality, or has a better performance record, or higher efficiency, than that offered by competitors. The selling of equipment on this "quality" basis is the goal of all successful sales engineers, as bitter experience has taught them that price cutting is not conducive to profits for the manufacturer.

In selling "quality" the engineering attributes of the salesman are called on again. He must understand what features of the equipment are of benefit to the purchaser. Some will be desirable to the plan-

ning department, such as the flexibility of the machine. Some characteristics, such as dependability, are of primary importance to the production department. Ease of maintenance of the machinery is the primary concern of the maintenance department. Overall efficiency is the concern of the administrative heads of the purchaser and is one of the main sales points to all concerned. The salesman may call on his local office "specialists" to help sell any of the above mentioned features of his equipment or he may call on his factory engineers for help. Since heavy equipment salesmen usually cover a rather large variety of machinery, sales are becoming more and more a matter of cooperation with all the application and design engineers the manufacturer can offer.

How and where to use this specialized personnel will depend on the nature and size of the customer and the knowledge the salesman needs to bring into use for the sale of the particular product under consideration. This subject will be covered in the next chapter as well as the problem of where to put sales effort.

Chapter IV

SALES ENGINEERS AND THEIR FUNCTION; THE SALES ORGANIZATION

We have explained the sales procedure in general and how a salesman functions in the negotiation. It is evident from this presentation why sales engineers are required to contact the customer of a heavy power equipment manufacturer. Let us now examine the characteristics of these sales engineers.

Personal selling is defined as "that form of the art of salesmanship which depends upon the personal contact of individuals to accomplish its purposes".[1]

> "Salesmanship is the ability to persuade people to want what they already need; is the mutually profitable service of exchange between the producer and the consumer; is the art of persuading people to purchase goods which will give off lasting satisfactions, by using methods which consume the least time and effort; is the art of selling; is nothing more or less than making the other fellow feel as you do about the thing you have to sell; is the art of satisfying the need of a customer with goods and services; thereby establishing continuous and profitable relations between buyer and seller". [2]

This definition covers the broad field of general salesmanship but must be adapted to our specific case.

Sellers are sometimes divided into two broad classifications. The vertical selling group are salesman and sales engineers selling equipment to particular industries. These salesman become known as textile salesman, lumber salesman, or utilities salesman, etc. They become

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1. Tosdal, H. R., Principles of Personal Selling, McGraw-Hill Publishing Company, 1926, Page 8.

2. Russell, F. A., Textbook of Salesmanship, McGraw-Hill Publishing Company, 1936, Page 6.

specialists in the application of their equipment to specific industries. The particular individual markets that they sell to may also be called a vertical market. The second division is known as the horizontal group. These salesmen and sales engineers sell a particular group of products to all industries. These engineers would be known as electrical sales engineers, or mechanical sales engineers, etc. They sell to a horizontal market which are all the industries using their type of equipment.

In order to get closer to the selling picture of heavy power equipment, let us consider the types of salesmen that can be used for this industry.1/ First of all, the most common selling representative of the heavy machinery manufacturer is the specialty sales engineer. He is a salesman qualified by education and experience to advise industrial and utility buyers on the engineering phases of highly technical applications. These men usually handle a single type of product or closely allied groups of products and specialize in certain industries. In other words, they serve the vertical markets with vertical products.2/ The second type of salesman is the general technical sales engineer. These salesmen are technically trained and are qualified to explain and apply general engineering products for a fairly wide number of uses. They often handle a large line of products used in a number of industries. These engineers serve the horizontal markets with horizontal products.

For the above two groups, selling ability and engineering knowledge are equally important qualifications. The third group of salesmen are the non-technical salesmen who are contact men,and negotiators, but

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1. Frederick, J. H. Industrial Marketing, Prentice-Hall Publishing Co., 1934.

2. Ibid.

cannot be of value on the engineering end.[1] They are becoming less and less common in the marketing of heavy power equipment. The fourth group of salesmen are the missionary men who enter the sales field mainly to educate rather than to sell.[2] Planning engineers and central station experts might be considered in this classification and as such are really in the field of sales promotion. Their functions will be discussed more fully with the other sales promotion aids. Since both the general and specialized sales engineers are commonly used to market this equipment and since their requisites and training are very similar, they will be considered as one, and called sales engineers. The duties and functions of the successful sales engineer are most concisely stated in the definition of the selling itself. "Sales engineering is the act of selling equipment and services which require engineering skill in their solution, application and use."[3] According to Bernard Lester, one of the outstanding experts on a sales engineering, the sales engineer has the double function of looking at problems from a technical view and with a "business eye".[4] That is, he must observe and evaluate what he sees on the basis of economic and technical factors. They must not only be engineers, but must understand the importance of profit and have a knowledge of the market.

The first duty or job of the sales engineer and his manager is to analyze the market he will deal with. In order to sell intelligently, the engineer should know whether he must deal with a "horizontal" or "vertical" market. If he is selling paper making machines, he will be

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1. Fredick, J. H., Industrial Marketing, Prentice-Hall Publishing Co., 1934.

2. Ibid.

3. Lester, Bernard, Sales Engineering, J. Wiley and Sons, 1940.

4. Ibid., Page 3.

dealing with the paper making industry, a vertical market. To deal effectively with them he must be an expert on this industry and he must learn how they think and act and what motivates their buying. If the salesman is dealing with a horizontal market such as centrifigal pumps, he must be an expert in his own equipment and its correct application. He cannot be responsible for a knowledge of all the industries that he will contact. In either case there are many problems that he must undertake and solve. First, he must locate his market. He must study it from a geographical point of view, so that he can plan to cover it effectively with the least possible waste of time.

Secondly, he must know the nature of the market and where the customer buys.[1] The market for turbines, for instance, is very different from the markets for transformers and switchgear. A turbine is a purchase made comparatively infrequently even by the largest utilites and industrials and usually involves the customers top "brass" as the magnitude of such a purchase brings it definitely into the field of the company's business policy. Transformers and switchgear, on the other hand, may be a comparatively routine purchase by the larger companies and the purchasing and engineering departments may handle all the elements of such a negotiation.

The third factor that the sales engineer must consider are the motives which actuate buying.[2] Most of his customers will be in business to make money. The primary appeal will then be the element of profit. This may be interpreted in their purchasing equipment of the lowest initial cost. This may be tempered by lower operating costs, higher efficiency,

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1. Lester, Bernard, Sales Engineering, J. Wiley and Sons, 1940.

2. Ibid.

or lower maintenance expense. The customer may be motivated in placing his orders by the various services performed by the vendor, such as planning, engineering, accounting, etc. The buyer may place his emphasis on the relative quality of the merchandise offered.

The fourth factor that the sales representative must be versed in is the relationship between distribution and selling.[1] He must know who can use his product, the acceptance of his make, what customers can satisfactorily apply his product to their uses, and the existing system of distribution. In the marketing of heavy power equipment there are three general routes for the sales engineer to consider:[2]

1. Direct from manufacturer to user. This method will apply where the utility or industrial have their own engineering departments or where the customer relies on the vendor for his engineering application.

2. From manufacturer through a consulting engineer or engineering firm to the user. Many large users employ the services of consulting engineers for policy reasons and many others hire them as they feel they need their advice for engineering problems.

3. From manufacturer to the major manufacturer who buys to complete the whole job and then vends the whole unit to the user. Accessory equipment, such as some pumps and other heavy auxilliary equipment are distributed in this manner.

The fifth general field that the sales engineer must be familiar with are the characteristics of the product he sells. He must know why the product is designed as it is. He must be cognizant of the steps in

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[1] Lester, Bernard, Sales Engineering, J. Wiley and Sons, 1940.

[2] Ibid.

in manufacture that affect its successful operation. He must understand how the equipment functions under normal conditions and under circumstances that are encountered less frequently, as well as all its possible uses. The design of the equipment, as far as the salesman is concerned, is important only as to the final result it accomplishes in service. Design information may be valuable, however, in evaluating the various competing products.

The sixth element that the sales representative is responsible for is having an understanding of organized methods of purchasing. He must study the individual purchaser as to the personnel in the organization. It is essential to know the responsibilities and personalities of each person involved in the buying. To be fully aware of the conditions affecting the sale it is important to be informed on the activities of the company, its financial condition, its business connections and even the outside companies which directly influence its buying. It can also be helpful to know the policies and plans of the purchaser as regards maintenance, replacement and expansion.

These are the general functions of sales engineers. The further analysis of their duties as related to sales procedure will be discussed under the subject "organizing for selling". A sales engineer must have considerable aid to perform all the functions mentioned. The sales organization that backs him up must be closely integrated. It is difficult to pick out a typical sales organization as not two are exactly alike; but in order to get an idea of their magnitude and functions, the one used by the Allis-Chalmers manufacturing company was selected.

In this company the sales department head is a vice-president who is director of sales of the General Machinery Division. He has an assistant to handle more routine matters and a staff of assisting depart-

ments. These departments include a commercial research section who work up sales potentials and a group of sales promotion sections. The central station sales group lends aid in coordinating sales and engineering in the application of the company's numerous products to the utility industries. The corresponding group that performs the same function for the general industries is called the industrial sales group. To augment these departments there are the export sales group and dealer sales group. This completes the staff division. They are located at the main plant in Milwaukee, but individuals from these groups often travel to different parts of the country to help the sales engineer with his utility or industrial customers particularly in the planning phase. Also, at the main plant are the product sections. The sales of each product section, is managed by a "sales-engineer - in-charge". The application engineering and recommendations, and general sales policies for the respective products are performed by these groups. There is a separate product section for rectifiers, switchgear, circuit breakers, transformers, voltage regulators, motor control, steam turbines, gas turbines, compressors, condensers, water treatment, pumps, generators and motors, in the heavy power equipment field. These sections make out proposals and give out engineering information to the sales engineer. Representatives from these product departments also travel to go with sales engineers to customers on special problems or on extra large potential sales, where the man in the field feels he needs factory assistance. The afore mentioned constitutes the sales organization at the factory.

The continental U. S. is divided into twelve regions for the field organization of the Allis-Chalmers manufacturing company. The New England regional set-up is typical of these twelve groups. It is headed by a regional manager and his staff. Some of these regions have an ad-

ministrative assistant and all have a representative of the treasurer's division to rule on credit and financial matters as well as an individual to handle inventory and shipping matters. Also, on the regional staff are the service and repair sections headed by a supervisor and including one or more service and erection engineers. The complement of the regional manager's staff is augmented by several specialists such as transformer, switchgear and turbine experts. The allocation of these experts to particular regions depends, of course, on the sales potentials for the respective equipment. Each region is made up of a number of district offices and resident representatives. In New England, Allis-Chalmers has two large district offices; one in Boston and one in New Haven, and a smaller office in Providence. Special representatives are assigned to Maine, New Hampshire, Central Massachusetts, Western Massachusetts, and Hartford. When sales warrant it, district offices will be set up where only resident representatives exist at the present. Each district office is headed by a district manager and includes as many salesman as are necessary to cover the area in the jurisdiction of the district. Often these salesmen are assigned an area to cover, but they may be assigned to special customers instead. In a few of the larger district offices, a vertical organization is used and salesmen are assigned on an industry basis. Most of the larger offices have an office correspondent or office engineer who handles a lot of the routine inquiry and detail work.

The organization described is fairly typical of those used by most heavy power equipment manufacturers. The sales engineer, despite the number of assisting personnel, is still responsible for the selling; and the success of the sales organization depends to a great extent on his conduct. In recognition of this fact almost all manufacturers thoroughly train their sales representatives at the factory to carry the burdens ministrative assistant and all have a representative of the treasurer's division to rule on credit and financial matters as well as an individual to handle inventory and shipping matters. Also, on the regional staff are the service and repair sections headed by a supervisor and including one or more service and erection engineers. The complement of the regional manager's staff is augmented by several specialists such as transformer, switchgear and turbine experts. The allocation of these experts to particular regions depends, of course, on the sales potentials for the respective equipment. Each region is made up of a number of district offices and resident representatives. In New England, Allis-Chalmers has two large district offices; one in Boston and one in New Haven, and a smaller office in Providence. Special representatives are assigned to Maine, New Hampshire, Central Massachusetts, Western Massachusetts, and Hartford. When sales warrant it, district offices will be set up where only resident representatives exist at the present. Each district office is headed by a district manager and includes as many salesmen as are necessary to cover the area in the jurisdiction of the district. Often these salesmen are assigned an area to cover, but they may be assigned to special customers instead. In a few of the larger district offices, a vertical organization is used and salesmen are assigned on an industry basis. Most of the larger offices have an office correspondent or office engineer who handles a lot of the routine quoting and detail work.

The organization described is fairly typical of those used by most heavy power equipment manufacturers. The sales engineer, despite the number of assisting personnel, is still responsible for the selling and the success of the sales organization depends to a great extent on his conduct. In recognition of this fact almost all manufacturers thoroughly train their sales representatives at the factory to make the utmost we have described. "The effectiveness of salesmen from the point of view of the employer, depends largely upon his policies in selecting, training, and managing them".[1] The careful selection of prospects is becoming more and more urgent due to the high costs of training potential sales engineers.

Psychological tests and standardized interview procedure are being used to "scientifically" select candidates for sales training. The reason is explained by F. L. Vaughn:

> "It seems that the psychological characteristics of an individual are the most important factors in determining his success as a salesman. A recent and significant development of applied psychology is the appraisal and measurement of such characteristics and their correlation to salesmanship and other callings. A series of tests has revealed a casual relation between the degree of success of salesmen and the extent to which they are extroverts. Their answers to questions and other reactions have been used in classifying them into groups according to the degree to which they are extroverts or introverts. The group most definitely extrovert had the best record as salesmen, and the one at the other extreme made the poorest showing; the second and third groups had records as salesmen in accordance with their intermediate positions." 2/

These tests together with past records and personal appearance pave the way to a better selection of prospects.

Every year many of the large manufacturers send representatives to interview and select promising young men from the American universities. This is rapidly becoming the largest source of their technical and sales personnel. One of the companies that follows this policy is Allis-Chalmers.[3] They hire graduate mechanical engineers for their mechanical

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1. Vaughan, F. L., Marketing, Farrar and Rinehart, Inc., 1942, Page 315.

2. Ibid., Page 316.

3. Information largely from interview with J. I. Onarheim, Feb. 12, 1948.

divisions and to sell their mechanical products. They take electrical engineers to market their electrical equipment and to engineer their electrical products. They hire industrial engineers for production, and chemical engineers for the processing sections, and mining, civil and metalurgical engineers and physicists for special work. To secure the ones most adaptable to their company and products they use, a standardized interview procedure with standard forms and a specified technique is used.[1] It is then a simpler problem to send "invitations" to the more desirable prospects. Most manufacturers of heavy power equipment have large and diverse possible fields of employment for these candidates. The most critical problem is to determine the field and job that they are best suited to. Since we are concerned with the marketing end, the Allis-Chalmers "scientific selection of sales engineers" is a suitable example of the tests used to carefully pick potential field representatives. The tests used by this company are as follows:[2]

Vocational Interest

1. "Kuder Preference Record"

This test determines the individual's interest in eight major areas covering most vocations. The test has the particular advantage of being easy to administer and scoring can be performed quickly. The areas are:

a. Mechanical
b. Computational work
c. Scientific
d. Persuasive-selling etc.

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1. Information largely from interview with J. I. Onarheim, Feb. 12, 1948.

2. Ibid.

e. Literary-advertising-writing bulletins, books, etc.

f. Musical

g. Social service

h. Clerical

It is the presence of certain interests, rather than the lack of interest in any one in particular, that is of importance.

Mental Maturity

2. "California test of Mental Maturity"

The most important part of this test for sales engineers is the last part which covers vocabulary. A correlation between successful results on this section and good potential salesmen has been noted.

Mechanical Comprehension

3. "Bemett B B" for graduate engineers has been chosen as the best test for mechanical comprehension by Allis-Chalmers, as a low score generally has denoted the lack of ability necessary for sales engineers.

Personality Tests

4. "Bernreuter Personality Inventory" has been chosen as it indicates:

a. Lack of adjustment to the individual's life and surroundings or neurotic tendencies

b. Self-sufficiency

c. Extroversion or introversion

Experience has shown that too strong an extrovert is often an egotist--not a desirable characteristic for a sales engineer.

d. Submissiveness--dominance, a high score is usually an enthusiastic supervisory type.

e. Confidence scale

f. Sociability scale

Allis-Chalmers finds the above tests helpful, but more of the stress is placed on man's performance during his training course. They have usually found a close correlation between his record on the training course and the results of the aforementioned tests. They believe that their selection and placement of students has improved 10% to 20% by the use of the standardized interview and another 10% to 20% from the use of the psychological tests.

Not all the individuals hired as prospective sales engineers are students. The usual sources of new sales personnel are; other firms, schools, universities, and advertisements. Many have been salesmen, design engineers, or have come from other vocations and their age groups vary a great deal. Despite their age, previous experience or salary status, most manufacturers of heavy power machinery feel that a potential salesman should have some factory training. Dr. Gordon Hunter, vice president of Phoenix Mutual Life Insurance Company says, "It costs less to develop a successful salesman than it costs to eliminate a failure--after he is hired!" [1/] The importance of sales training is becoming more evident to heavy power equipment manufacturers because: [2/]

1. The successful sales engineer must be able to interpret the business, or sell the product rather than to expect friendship, personality, or popularity to make the sale for them.

2. Competition in the Boston area is keen and the successful

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1. Barker, C. W. and Anshen, M., Modern Marketing, McGraw-Hill Publishing Company, 1939, Page 163.

2. Hall, S. R., Handbook of Sales Management, McGraw-Hill Publishing Co., 1931.

salesman must know his product. He must also understand sales tactics in order that he may "meet the scientific attitude of many buyers and the demands of the alert and competent purchasing agent".[1/]

3. "Knowledge of the various departments of a business is essential so that the men of the sales department understand the operation and requirements of the business as a whole and can work smoothly with all executives or department heads".[2/]

4. Centralized or factory training makes possible the assemblying of information concerning sales methods and sales policies from which salesmen can be more thoroughly educated. This central reservoir is more complete than any field organization can be.

5. Systemized training makes it possible for the employer to observe the salesman and to form fairly accurate opinions concerning his ability.

6. It is believed that a period of training develops character.

The training is expensive, but the practice in delivery of ideas, the obtaining of product knowledge, and knack of customer analysis gained at the factory save money later on.

It is not the writer's purpose to establish factory training as the only way of equipping the salesmen with the ability to sell. Intensive classroom and school study under competent instructors certainly has its place. This should be augmented by private instruction from the local sales manager or from a well qualified senior salesman. The prospective sales engineer will gather much practical help while accompanying

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1. Hall, S. R., Handbook of Sales Management, McGraw-Hill Publishing Company, 1931, Page 307.

2. Ibid., Page 307-308.

an experienced and successful salesman as an understudy. Certain correspondence courses and night college courses can provide valuable marketing instruction during spare hours while the sales engineer is employed.

As examples of the factory sales training given to sales engineers who are going to be employed by leading heavy power equipment manufacturers in the Boston area, we shall briefly outline the programs of the General Electric Company, and the Allis-Chalmers manufacturing company. The General Electric Company's general sales course is extended over a period of about two years. [1] It is divided into seven parts. At first, students are given a review of engineering fundamentals, including college physics, mechanics, dynamics, statics, thermodynamics, electricity and electronics. This course takes sixteen weeks as do all of the other parts. The second period is devoted to the study of application engineering. The future salesman learns to apply electrical apparatus to industry. The third section is devoted to a study of the company organization. Information on the company's structure, commercial policy, and the procedure of handling matters within the company are thoroughly covered. The fourth division is covered by a course purchased from the Sales Analysis Institute. This is a patented course on sales psychology, application technique and a lot of the hidden ideas covering the marketing of industrial and heavy power equipment. The fifth course is devoted to the effective presentation of business ideas. This is primarily a speaking and letter writing instruction period. Extemperaneous and impromptu speeches are given and carefully criticized. Prepared talks

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1. The information on the General Electric training course is largely from an interview with Warren Howard of the General Electric Company, January 26, 1948.

are also presented. As a conclusion, students analyze speaking and presentation formulae. The sixth part of the program is on the subject of product analysis. This is a study of the types, benefits and application of General Electric apparatus in particular. The seventh and concluding section of the factory training course is called "Better Business Management". It is a coordinated course in which students representing equal numbers of commercial, engineering, manufacturing, production, and personnel men from various departments of the factories and district offices study mutual problems. Each student is chairman of a meeting.

At the end of the course, there is graduation and a big social party. Some of the students go on to specialists' courses, depending upon the products handled, customers, responsibilities, etc. and the course may be extended over a year after completion of the general course.

The Allis-Chalmers "graduate training course" places most effort on product knowledge and company organization.[1] After psychological tests, it is up to the student to decide where to spend the major part of his time. He will receive counsel from the personnel and training department. His choice may be design, research, production, or other departments. For the prospective sales engineers the training course is eighteen months in length. It consists of an organized electrical course, and courses in the mechanical sections followed by a sales course called the "Utility Approach". The various mechanical courses are similar to the electrical courses, and therefore, for the purpose of this brief ex-

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1. Information on the Allis-Chalmers training course from an interview with Bert Colby, Commercial Research Department, Allis-Chalmers, December 19, 1947.

ample, the outline of the electrical course will suffice for the technical end. The fundamental purpose of the standard four months electrical study at Allis-Chalmers is to have the student become familiar with the technical points of the product and the design and application of Allis-Chalmers electrical equipment. Part of this period is spent analyzing competitors products also. One excellent part of the course allows the student to make a presentation of his product to make believe "Purchaser" who is another student and against simulated competition. This is only done in the transformer and regulator sections at present, but it is planned to carry this policy through for all sections. Shop trips are planned for each electrical department which means transformer, rectifier, voltage regulator, switchgear, motor and generator, and control. Potential sales engineers also spend time in the pricing section, factory sales section, engineering section and design section of each of the aforementioned departments. The climax to this part of the course is called the "Utility Approach", and this is an industrial sales course. It is presented by ex-utility men and experienced utility salesmen from the company's central station and industrial sales departments. The various factors that influence the sales are discussed and desirable personality characteristics are frankly talked up. Various true case studies from their sales files are explained along with typical organization charts of utilities and outlines of electrical system operation. The number of men necessary to cultivate in the customers organization and the way to get along with them are also the subjects of lectures. While this course covers generally the same field as the one offered by the General Electric Company, Allis-Chalmers places more effect on product knowledge and analysis at the factory and follows up with practical sales training in the field and on the

job. Both courses are typical of the ones offered by almost all heavy power equipment manufacturers. Bernard Lester believes all of these courses should stress four points.[1]

1. A knowledge of customers and markets
2. A knowledge of products offered, not only yours, but also those of customers
3. The development of personal characteristics, courtesy, good manners, pleasing disposition, courage and persistence etc.
4. The development of sales skills and the will to do a creditable job.

Almost all writers on the subject of industrial marketing seem to agree on the desirable personal characteristics of a salesman. Russell in his "Textbook of Salesmanship" lists the following qualifications:[2]

1. Adaptability
2. Courage
3. Desire to study
4. Discipline
5. Forcefulness
6. Health
7. Honesty
8. Persistence
9. Resourcefulness
10. Tact

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[1] Lester, Bernard, Sales Engineering, T. Wiley and Sons, 1940.

[2] Russell, F. A., Textbook of Salesmanship, McGraw-Hill Publishing Co., Page 11-13.

Holtzclaw quotes the characteristics deemed desirable for salesmen by the L. E. Waterman Company as appearance, knowledge, ambition, courtesy, enthusiasm, cooperation, observation, and intelligence.[1] While these qualifications, as advanced by these authorities, read quite differently, the characteristics of an individual possessing either set of qualities would be about the same. To possess such a composite list of attributes would be quite a goal for any person.

There are fundamentally ten different payment methods for salesmen.[2] These are listed as follows:

1. Straight commission
2. Straight salary
3. Salary plus commission
4. Salary or commission combined with bonus
5. The task or task and bonus system
6. The point system
7. The rating system
8. The sales quota plan
9. Profit sharing
10. Salary and percentage of saving plan

The manufacturer's agent is usually compensated by a straight commission or a commission with a bonus. The heavy power equipment salesmen, however, is usually paid a salary and sometimes a bonus is added for a superior selling record. The reason for using this system is that heavy machinery sales are a repeat business proposition and the long term satis-

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1. Holtzclaw, H. F., Principles of Marketing, Thomas Y. Crowell Co., 1936.

2. Ibid.

factory relations with a customer are often far more important than an immediate sale. High pressure techniques are therefore undesirable and any incentive which might result in this form of selling is to be discouraged. Some of the regional managers, however, receive bonuses or a percentage in a profit sharing system on top of their regular salary. A few manufacturers have adopted a salary plus a small bonus compensation system, but in general the financial incentive for the heavy power equipment salesman is the prospect of a larger salary.

In the operation of any field sales organization, the manager plays a very important part. Most sales managers have been salesmen before they were raised to managerial position. They, therefore, understand the problems and interests of the men actually doing the selling. In any supervision of salesmen, the objective is to develop and maintain their sales ability. Probably the most important aspect of this objective is to arouse and sustain the salesman's enthusiasm. 1/ This can be done by means of letters, publications, conventions, contests, and promotions. It is amazing what a salesman can and will do for a pat on the back from the "boss". The sales manager must of course direct the activities of his salesmen and supervise the office as well as make many other policy decision, but the idea of instilling enthusiasm in his salesmen is fundamental to a successful sales office.

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1. Vaughan, F. L., Marketing, Farrar and Rinehart, Inc., 1942.

Chapter V

ADVERTISING AND SALES PROMOTION

Vaughan clarifies the relationship of personal selling and advertising as used in the marketing of heavy power equipment in the following paragraph:

> "Today's definition,--salesmanship is considered personal, 'handicraft', and small scale; while advertising is impersonal, machine-like, and large scale. In other words, one is the personal solicitation of a prospective buyer; while the other is an impersonal, mechanical, and large scale appeal to a group of prospective buyers." 1/

What then, is the relationship between advertising and personal selling? In the case of heavy power machinery, advertising is used to supplement personal selling. Advertising is also used to break down sales resistance and to make the work of salesman more productive. Personal selling has the characteristic of being adaptable to meet the needs existing at the time sales promotion is most desirable. It permits the seller to speak the language of the potential customers and stress the points the buyer finds interesting, as well as answer the questions the purchaser may have in mind. Advertising, on the other hand, is impersonal and must of necessity, speak only to the average and not the individual customer.

In the industrial field, advertising's most important activity is to increase the effectiveness of the salesmen's activities. Advertising can accomplish this in six ways: 2/

1. Advertising can secure inquiries and thus save the salesman's

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1. Vaughan, F. L., Marketing, Farrar and Rinehart, Inc., 1942, Page 315.

2. Elder, Robert F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1935.

time from being wasted on non-prospects. Potential customers, after seeing an advertisement of a product that they would like to know more about, will write for a descriptive bulletin or consult the manufacturer's nearest district office.

2. Advertising can pave the way for the salesman. It will help to put the manufacturer's name in the mind of the buyer. It is just normal psychology to more warmly receive the representative of a manufacturer, whose name is familiar to you. It is this increased effectiveness in the initial interview that is one of the goals of industrial advertising.

3. Advertising can increase the frequency of contact. There is a certain limit to the frequency of personal calls for manpower and economic reasons. Advertising may substitute for calls by keeping the manufacturer's name and products before the buyer.

4. Advertising can be used to reach keymen that the average sales engineer is unable to see. Also, there may be a number of top officials who do not usually receive manufacturer's representatives, but do read industrial magazines, listen to the radio, and glance through professional journals.

5. Advertising can gain prestige for the manufacturer and hence for his representatives. It reflects the integrity of a good manufacturer, if his advertisements are frank and well planned copy.

6. Advertising can check or emphasize the salesman's story. It is a human weakness to more quickly believe the printed word than the verbal story.

These six supplements sales aids are what can be expected from intelligent and active advertising. Without it, selling is costly and often long periods of time and many orders are lost before the representative can be effective. Advertising cannot actually create demand for heavy

power machinery as this equipment is only purchased for new plants, expansion purposes and replacement. Therefore the advertising of this equipment keeps the name of the manufacturer in front of the buyer so that his equipment will be purchased when conditions warrant new additions. The only exception to this is the cost-saving installation. Advertising may create demand for this type of equipment, but such apparatus is not common in the heavy power field.

Advertising media are not numerous for heavy industrial equipment. The "National Industrial Advertisers Association" lists some of those in common use as follows:[1]

1. Trade and Business Papers
    a. Advertising can be in the form of advertising copy in the advertising space of the magazines.
    b. Advertising can also be accomplished by technical or business articles by employees of a manufacturer, or articles about a product of a manufacturer. These discertations appear in the literary section of the magazine but can often be invaluable advertising.
2. Direct Mail
    a. Advertisements sent to the attention of a person for whom the particular advertising is intended. It may be sent to an individual as a "Mr. Jones", or to a "Title" such as the chief engineer, purchasing agent, etc.
3. Sales and Service Literature

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[1] Elder, Robert F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1935.

a. Bulletins and printed advertising passed out in sales calls or during service or repair procedure.

4. Miscellaneous Printed Material

a. This includes such items such as catalogues presented to some of the larger customers and carried by the salesmen.

5. Motion Pictures, Slides etc.

a. Often motion pictures are presented in conjunction with technical lectures and this is a good source of the less obtrusive advertising.

6. Radio Advertising

a. In the heavy power equipment field most radio advertising is "institutional" or "identification" advertising.[1]

There are other media, but they are not in popular or wide usage at the present time. Business and trade papers and direct mail are the most common places for heavy equipment ads. They actually perform about the same task, but in a somewhat different way. Business and trade papers may be defined as magazines selecting certain specific fields or phases of business for editorial and advertising activities.[2] They serve fundamentally two purposes. They are market centers where the producer of industrial products may offer his wares for sale. They are also independent and authoritative educational institutions. This provides a double possibility for advertising to the alert manufacturer; he can, of course, buy

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1. Elder, R. F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1935.

2. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

space for advertising copy, or one of his engineers can prepare an article, or possibly one of his products will warrant a discertation that will be presented as an article. There are four types of business and trade papers.[1]

1. There are industrial or commercial publications such as "Electrical World". They usually cover a particular industry, and they are mostly advertised in by industrials in a specific field.

2. The second type are technical and professional publications such as "Factory Management and Maintenance", "Electrical Engineering", "Mechanical Engineering". They reach readers doing a similar kind of work over a broad field.

3. The third group are called administrative publications, such as "Business Week" and "Nation's Business". They appeal to a horizontal market and the manufacturers who use them present ideas that would be of interest to almost all industry.

4. The fourth classification of business and trade papers are the distribution publications such as "Mill Supplies," and "Electrical Wholesaling".

Estimates of the number of individuals reading these papers vary according to time, those making the survey, and the other variables. Frederick (on the basis of data assembled from a questionnaire sent out by "Electrical World") says that a large number (70%) of the buyers of one type of industrial product, equipment in particular, stated that they regarded the business and trade papers as the most valuable source of information on new developments in that line.[2] An interesting check was

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

2. Ibid.

made in this survey of the type of medium that provides direct contact with the industrial buyer through replies to the following question:[1] Companies in the manufacturing industries were asked in what publication advertising of equipment should be published to be most useful to their organization. Over 96% of the replies specified industrial and trade publications as those in which they wished to read advertisements of manufacturers' equipment; in the service industries, such as utilities, 98% specified the same type of publications.[2] The classes of publications preferred by both manufacturing and service industries were found to be as follows:

Table VI

PREFERENCE IN TYPES OF PUBLICATIONS OF INDUSTRIAL BUYERS[3]

Type of Publication	Number of Organizations in Manufacturing Industries	Number of Organizations in Service Industries
Business and trade publications	585	344
Directories (trade) misc.	51	21
Financial publications	29	2
General medium	16	7

Another survey of the reading habits of 383 industrial managers revealed the fact that 66% of those managers interviewed relied upon business and trade papers to supply them with information on new processes,

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[1] Frederick, J. H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

[2] Ibid.

[3] Ibid.

methods, new equipment, and material.[1] In other words this proportion of the industrial managers stated that they read articles or advertisements dealing with this subject in trade and business papers. At the same time only 10% of these men read such ads or articles in general publications.[2] General publications reach their readers only through personal subscriptions and newstand sales. Business publications, however, are frequently routed from executive to executive throughout a plant on a company subscription so that these papers quite often have a very large unrecorded circulation.

Agnew, an expert on advertising media, lists the following advantages of advertising in business and trade papers:[3]

1. Most worthwhile trade and business papers have a controlled circulation policy. These magazines are available chiefly to leaders in the industry or professional men, and generally they reach practically all of the men controlling the buying power of the field in which they circulate.

2. At the same time, business and trade papers cover a large buying market with great buying power per average reader, and with a minimum of unresponsive circulation.

3. Evidence has shown that these publications are read both at home and at the office during business hours.

4. Many magazines of this type present authoritative articles and these publications are held in high esteem by their readers.

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

2. Ibid.

3. Agnew, H. E. Advertising Media, P. Van Nostrand Co., 1932.

5. Business and trade papers are published weekly or monthly and are therefore timely. Advertising copy can also be timely as it does not have to be prepared far in advance as is the case with most general publications.

6. The professional readers can easily understand the technical language necessary for descriptive advertising of heavy power equipment.

7. Business and trade papers are subscribed to by almost all large industry and professional people and therefore follow men from job to job.

Agnew also lists certain disadvantages of these papers: [1]

1. There are too many business and trade papers. This results in inflated circulation, overlapping and duplication. Unless manufacturers carry copy in almost all the magazines, they may miss desirable prospects.

2. Business and trade papers often carry too much advertising in one issue and the chances that one manufacturer's copy will be noticed or read are small.

3. In spite of the fact that surveys indicate that a large proportion of professional and industrial executives read business and trade papers regularly, many advertisers feel that some means should be provided of insuring that the readers consult the advertising sections.

4. Despite the rather ambitious programs and policies of some of these papers, there are still a great many who are ignorant about the market they represent and the extent of the

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[1] Agnew, H. E., Advertising Media, P. Van Nostrand Company, 1932.

purchases made by their readers.

General Business Publications were found by the writer to contain little or no heavy power equipment advertising copy. Newspapers, and general magazines likewise are not used by this industry. Direct mail advertising is the other popular form for ads on power installations. These advertisements take the form of bulletins, booklets, or folders that are sent to customers by name or title at their place of business or residence. They have certain specific advantages. The messages are generally direct and are written to personally appeal to the selected people on the particular mailing list. The message, at the same time, does not have to compete with others for the attention of the reader as do advetisements in business and trade publications. This direct appeal can be timed to reach the customer when they are likely to be a prospect for the particular product. Wasted circulation is almost eliminated, since the manufacturer can select his prospects very carefully. The advertiser using direct mail can also present as complete a story as deemed desirable and use as technical a form of presentation as the occasion and reader warrant. Most of the heavy power equipment producers use direct mail for a part of their advertising compaign. General Electric, Westinghouse, and Allis-Chalmers, have regular mailing lists for distribution of this material in the Boston area. Some manufacturers have a regular magazine or bulletin sent out monthly which contains information on more than one product. Such a magazine is "The Allis-Chalmers Review", a technical, electrical, direct mail publication, containing articles, product information, and regular advertising copy and distributed only to persons on a selected mailing list. Where the number of prospects are small, direct mail advertising is particularly attractive.

This form of advertising also appeals to the smaller manufacturer who cannot afford to waste his advertising dollar. You can be pretty sure of your material reaching the prospect, but whether he reads it or automatically throws it out, is another problem. One of the most important elements of direct mail advertising is in keeping the mailing lists accurate and up to date. In 1938, a Chicago advertising agency estimated that the names on mailing lists to manufacturers are subject to about a 25% change per year. [1] The importance of direct mail advertising cannot be overestimated. Before World War II, a survey made in Chicago showed that 49.3% of advertising appropriations were for direct mail. [2] This covered 56 classifications of industries in all fields. From a questionnaire issued by Electrical World, approximately 30% of industrial buyers clearly indicated that they valued manufacturers catalogs, booklets, and other direct mail literature furnishing information relating to the application and performance of the equipment. The writer in a series of interviews with buyers in the Boston area found the following:

A purchasing agent of a large utility in the area said that he noticed and opened direct mail advertisements sent to his attention, but found many of them too detailed, or not applicable to the utility problems. On the other hand a large percentage were interesting and were forwarded to engineers in the various departments for their investigation. [3]

A manager of a typical municipal indicated that most managers of these smaller utilities had time to read direct mail ads and that they

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1. Walter, L. R., Effective Marketing, McGraw-Hill Publishing Co., 1938.

2. Ibid.

3. Interview, A. W. Sullivan, Ass't Purchasing Agent, Boston Edison Co., February 11, 1948.

served their purpose particularly when followed up by salesmen's calls.[1] An interview with several engineers of a large consulting engineering firm indicated that if the mail is properly addressed, it will receive attention.[2] If, however, the ads are sent to an engineer handling something not connected with the apparatus discussed, the material will probably not get forwarded to the correct party.[3] It appears that the problem of successful distribution of direct mail material is more difficult in large industrials. If it is sent to a purchasing agent, he is likely to dispose of it without particular attention unless it happens to fit in with something he is purchasing at that time. Small industrials do seem to give more attention to this form of advertising unless they become overburdened with it. From the writer's experience it appears that in the heavy power equipment field new developments, improvements in design, and new applications can be successfully advertised by direct mail that is correctly directed to interested prospects.

Most heavy equipment manufacturers marketing in New England do some direct mail and some trade paper advertising. A typical advertising program for the year 1948 as proposed by one manufacturer is outlined as having two main aims.[4] The first aim will be to give immediate advertising assistance to company products that are reasonably available as far as shipment is concerned. The second aim is to lay the advertising groundwork for an anticipated increase in competitive selling conditions

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1. Interview, Leo Nimblett, Manager Danvers Electric Lt. Dept., Feb. 25, 1948.
   " Carol Oliver, Ass't Manager Belmont Electric Lt. Dept., " "
   " Joseph Price, Sup't Norwood Electric Light Dept., Feb. 26, 1948.

2. O. M. Fish, Jackson & Moreland Engineers, March 8, 1948.

3. Ibid.

4. Information on this program came from a confidential source.

in other company products which will be more available for reasonably prompt delivery at some future time. The outstanding change in this company's advertising is the return to "prestige advertising". This "big time" advertising will consist of double-page spreads throughout the year in "Time", "Newsweek", "Business Week", and "U. S. News". The same ads will also appear in the "Wall Street Journal", and the "Chicago Journal of Commerce". An increase in the amount of "industry type advertising" is also planned. This is done to demonstrate to an industry the wide line of equipment that this company manufacturers specifically for that industry. Among the industries to be covered are Electric Utilities, Iron and Steel, Pulp and Paper, Public Works, Petroleum, etc. In addition to the above campaigns, over twenty advertising campaigns covering specific product lines will be run in a wide list of the leading trade magazines. These product ads will include more sales data than ever used before.

During 1947, this company published a total of 123 descriptive bulletins, 76 of which were entirely new or materially revised. In 1948, even more will be made available so that there will be at least one bulletin for each important product. Customer catalogs, specifications sheets, and price books will also receive increased attentions. New installation photographs are being made to keep the advertising timely. Advertising for this company will be a "high speed tool of selling" in a long range sales plan.

Table VII outlines the trade and institutional paper advertising for the year 1938, for this company.

The preparation of advertising is not a subject for this paper. A few of the more commonly accepted ideas of advertising copy for heavy power equipment are important to the general theme of this discussion. Most heavy equipment advertising has been found to be more effective if it is

Table VII

1948 ADVERTISING SCHEDULE - TYPICAL HEAVY EQUIPMENT MANUFACTURER [1]

Institutional Campaign

	Circulation	Space	Insertions
TIME	1,577,066	2-page spreads	10
BUSINESS WEEK . . .	167,114	2-page spreads	13
NEWSWEEK . . .	726,188	2-page spreads	10
U. S. NEWS . . .	280,266	2-page spreads	10
WALL STREET JOURNAL .	96,757	½ pages (same size as spreads above)	13
CHICAGO JOURNAL OF COMMERCE	32,920	½ pages	13
Totals . . .	2,880,311		69

Trade Campaign

	Total Circulation	Space	Total Pages
A total of 74 foremost Industrial Publications	1,221,886	Single and double pages, many in two colors	1,759

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1. **Confidential Source**

informative.[1] The exception to this is institutional advertising which does not deal specifically with the products sold by the advertiser but rather defines or elaborates their policies, trade practices, or general position in the particular industry. While this form of advertising may be informative to a degree, its purpose is to build prestige and good-will. In general, the writer believes that advertising of heavy power equipment should lay stress on the characteristics of the product rather than the usefulness of the product. This is a breech in the policy of most industrial advertising, but the reason for this is that buyers of power installation know the use and purpose of the industrial equipment and are more interested in the specific features and characteristics of the particular machine. Ads describing the product should be specific, but at the same time they must be interesting and convincing. In addition the advertising approach and language should be fitted to the medium used. Advertising is flexible and points of emphasis, and amount of detail can be varied to the particular selling problem with which a manufacturer may be confronted.

In order to get a better idea of the advertising used by heavy power equipment manufacturers, the writer made a survey of advertising appeals used by manufacturers in ads in more than fifty issues of twelve leading business and trade publications. The work sheet as well as the explanation of the equipment will be found in Appendix A. Table VIII will show the results of this survey along with the results of a much more complete analysis made some years ago. From the comparison of the two surveys it is easy to see that the most popular primary appeals are efficiency, economy, institutional and quality. It is fairly easy to account for the

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1. Frederick, J. H., Industrial Marketing, Prentice-Hall Publishing Co., 1934.

large rise in the use of the institutional appeal. In the twenties and early thirties, heavy electrical and mechanical power equipment was undergoing a radical change. It was possible at that time to use more new appeals, such as new products, major improvements, and new uses. General Electric used a three point appeal on switchgear.

> "50% reduction in weight, and size
> plus greater reliability". [1]

Such an ad was possible in those days, but today most of the competing products are very similar in their major characteristics and differ only in details, arrangement, or other less spectacular ways. In other words, at the present time, it is very unusual to find any one heavy equipment competitor offering anything radically different from another. The result has been a tendency towards ads to build up the prestige, integerity and engineering progressiveness of the manufacturer. According to the author's experience in the past two years, delivery time required for apparatus has been a major element in the awarding of contracts. It is, therefore, somewhat surprising to note that delivery was an appeal in only fourteen out of six hundred advertisements, and these happened to be concentrated largely in the diesel engine field.

The advertisements themselves, very often presented pictures of prize installations and stressed the wide experience of the manufacturer in the field. Also noteworthy, was the fact that so much of the copy seemed to be in the more or less educational field, that is, the ads were explanatory of the things that could be done with the apparatus, and the flexibility of use in a customer's plant. One issue of "Power" magazine

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1. Reed, Virgil D., Advertising and Selling Industrial Goods, Ronald Press Company, 1936, Page 59.

Table VIII

STUDY OF ADVERTISING APPEALS

Primary Appeal of Individual Advertisement

Primary Appeal	Heavy Equipment, 1924-1925; 1926-1927; 1928-1929; 1930-1931; 1932-1933; (3600 Industrial Advertisements) Prorated to 600 advertisements	Heavy Power Equipment June, 1947-Dec., 1947 600 industrial advertisements
Efficiency-	128	60
Economy-	105	55
Institutional-	122	260
Quality-	62	55
Strength-	18	6
Durability-	23	8
Dependability-	28	80
Accuracy-	29	7
Uniformity-	17	--
Low Maintenance-	20	25
Simplicity-	18	7
Standard or Standardization-	8	3
Service-	3	5
Obsolescence	14	--
Safety-	4	12
Made to specs-	3	5
Delivery-		14

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1. Reed, Virgil P., Advertising & Selling Industrial Goods, Page 59.

2. Author Survey, December 1947, See Appendix A.

had seventy heavy power equipment ads alone, (almost all of which were full-page displays) and had two-hundred and seventy pages of industrial advertisements.[1] It's no small wonder that buyers find these magazines of any value at all. It is true that this overcrowding of material has greatly lessened the value of advertising in trade papers. Some heavy power equipment companies, however, do allot the major share of their budget to purchasing copy in these magazines.[2] The McGraw-Hill Publishing Company is one of the largest publishers of heavy power equipment magazines which include, "Power", "Engineering News Record", and "Electrical World". Their salesmen work with the manufacturer to plan campaigns, write copy etc. These magazines go as far as making circulation, media, and reader studies, but some of the findings are naturally somewhat prejudiced.[3]

Large heavy power equipment producers do not just purchase advertising space, but organize their material for campaigns.[4] The volume of advertising warranted is alloted to products (partly by percentage of sales) or to industries. That is, a percentage of the advertising dollar is allocated to a product, or a certain part of the advertising is devoted to advertising the product to a certain industry. The campaign is then set up either for an institutional approach to build prestige both for the product and the company, or as a product campaign to discuss new features of the product or new approaches to the same product. To decide what advertising to use and to get ideas, competitive advertisements are studied as to what was advertised, salable features, and selling appeals. Sales per-

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1. Power, November 1947, Vol. 91, No. 11, McGraw-Hill Publishing Company.
2. Interview, George Johnson, Advertising Dept., Allis-Chalmers, Dec. 18, '47.
3. Interview, E. Lawler, Advertising Dept., Allis-Chalmers, Dec. 18, '47.
4. Ibid.

sonnel and people from the product departments are asked for suggestions for advertising features that are different. Certain strategy is considered in the releasing of advertising.[1] Certain copy is held from print until the ideal time. Certain psychological tricks are used such as radical changes in form of copy when there is a major change in the product and not showing competitors advantages when they can be easily adopted. Sale appeals, as used by one company, are based largely on the competitive advantages that they have to offer, but manufacturers may also try to have their name associated with a product. It should be realized that the advertising campaign is but a part of the complete marketing plan. It is, therefore, essential that advertising and sales effort be coordinated. Salesmen should be given an introduction to the whole advertising scheme followed by the company. The salesman should be made to feel that he is a vital connection with every advertisement published as well as every booklet and circular sent to the prospects they are cultivating. The complete advertising campaign should be presented to the sales department and salesmen with a view to encouraging an expression of opinion from this personnel. It is only with this feeling of being a part of the whole advertising plan that the salesman will take advantage of the advertising and the leads it makes for him. At sometime during a particular advertising campaign, the salesman should be provided with sample copies of the publications used, together with a statement of the reasons why advertising appears therein. He will then be in a better position to follow up this advertising with sales calls.

In the heavy power equipment field, advertising does not sell the product. At best it can develop leads, build prestige for the manu-

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1. Interview, George Johnson, Advertising Dept., Allis-Chalmers, December 18, 1947.

facturer and his product, or serve in an educational capacity to show readers what job a certain machine performs, or how the apparatus performs the task. Such advertising is worthless if not followed up by personal sales contacts, but at the same time, the efficiency of salesmen is greatly impaired if not completely ruined without the aid of advertising. The use of competent, well trained salesmen, augmented by an organized practical advertising campaign is the key to a successful marketing program.

Since almost all builders of heavy power equipment market their products on a national scale, and since the general selling problems of this machinery is virtually the same in all areas, the advertising takes on a national scope and little special advertising is done in any particular region. Direct mail is usually sent out to a mailing list that is nation wide in magnitude even though composed by regions. The trade papers used by power equipment manufacturers for advertising have nation wide distribution, so that we may say that the advertising program used by a heavy power machinery manufacturer for Boston would be very similar to the one used in Chicago, St. Louis or Los Angeles. The exception to this, of course, is in the case of the manufacturer who makes equipment that is not used universally and geographically. Such an item as a hydraulic turbine would have no demand where water power is impractical. A company such as the S. Morgan Smith Company would then concentrate its direct mail advertising in areas where hydraulic power generation is prevalent.

Chapter VI

HEAVY POWER EQUIPMENT BUYER AND PURCHASING POLICIES

The purchase of heavy power equipment has many distinguishing factors that make the buying procedure and policies somewhat different from other purchasing. These individualities are not only important to the sales force of the vendor but are important to the whole marketing program and merchandising approach. In the first place, heavy power equipment purchasing involves large amounts even though the number of units of product purchased is very small. The sum expended may be a few thousand dollars or more than a million. The second characteristic of heavy power machinery purchasing is that purchases are made on a performance basis. The buyer is interested in economy in use, dependability, durability, flexibility, simplicity, ease of installation, and facility of repairing. Before, this equipment is purchased, the buyer must have in his possession detailed specifications of this product and in most instances with this information at hand, a careful study is made of the merits of the particular article in question before any substantial committments are made.

The third characteristic of the heavy power machinery industry is the keen competitiveness of the manufacturers. As a result, most of the competing equipment has simialr operation results and one item of one manufacturer is interchangeable with the corresponding machine of another manufacturer. The result is that the purchaser usually buys from more than one supplier and business is very often "split" between manufacturers. The fourth factor in the purchasing of this machinery is the presence of

two distinct buying groups, namely the vertical buying group and the horizontal buying group.[1] In the former, there are those buyers who are a part of a definite industry such as those connected with rolling mills, steel making, alumium repairing etc. These industrials use a large amount of heavy power equipment, but their problems are those of special application. The latter group consists of those buyers whose functions extend broadly through all industries and include those who are mechanically, electrically and power minded, such as engineers and mechanics. Most manufacturers recognize the existance of the two groups as they must vary the selling to "fit in" with the requirements of their potential customers. As we have already revealed, for practical considerations, the actual bulk of the market for heavy power equipment is really of the horizontal variety and the manufacturer must cater to a horizontal buying group.

The fifth major characteristic in the purchase of power installations is the large number of people are involved in the transaction. It is only in rare cases that the buying power is vested in one person.

The Eastman Study made some years ago shows the number of people involved in the purchase of plant equipment:[2]

.7 of 1% - one person
9% - two people
29% - three "
26% - four "
13% - five "
23% - six or more people

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Co. 1934.

2. Eastman, R. O., Who Buys for American Industry?, McGraw-Hill Publishing Company, 1927.

In the selling of heavy power machinery it is often difficult to find the person or persons who are responsible for the purchases. The men who may have a voice in buying differ according to the product and the size of the purchase even for the same industries; and vary also, as between different companies, even for the same product.

The sixth characteristic of heavy equipment buying is the great amount of time necessary for the consumation of the negotiation. A study made by the Advertising Counsellors Staff of the McGraw-Hill Company revealed that in equipment purchases of over $1000.00 made by larger companies, an average of ninety-nine days required before the transaction was completed, while for smaller plants, an average of at least thirty days was required. 1/ For medium sized plants an average of eighty days elapsed between the time the need was expressed and the order was placed. 2/

The seventh factor differentiating heavy power equipment purchasing from other procurement is the prevalence of reciprocal buying. This results from the equipment manufacturers being large consumers of power. The eighth element distinguishing the buying of heavy power equipment is the service factor. As we have stated previously a vast amount of technical service is required to market installations. The individual buyer will want the producer's engineers to make a careful intensive study of the particular requirements. The arrangement of the plant, the nature of the power system, costs on individual and total operation are frequently subjected to careful study in so far as the buyer desires it. Other service will be desired from the manufacturer by the purchaser. This will

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1. Industrial Advertising at Work, Advertising Counsellors Staff, McGraw-Hill Publishing Company, 1931.

2. Ibid.

take the form of consultations with chief engineers, production managers, department foremen, design engineers, and vice-presidents in charge of production, by the manufacturer's representatives and specialists. The buyer also requires the aid of the vendor in checking and improving the detailed specifications that the buyer's engineers have drawn up. The purchaser may also want demonstrations or wish to make field trips. The service factor is important for heavy power equipment even after the sale has been made, for the manufacturer must install the machine, put it in working order, and sometimes test its operation to see if it meets performance guarantees. This installation service will be required by all buyers of electrical generating equipment for power houses, boilers, steam turbines, for the power plants of factories and most large machinery systems. The service factor may be an important element to the buyer for many years after the original sale. Repair and adjustment services will be desired by the purchaser particularly for other than routine troubles. Some manufacturers feel they must provide this service for good will, and buyers have capitalized on this.

There are some other factors connected with the characteristics we have mentioned that in themselves are n ot terribly important, but may affect the marketing policies of the installation vendor. Special financing is often necessary because funds are tied up for a long period of time and capital turnover is extremely slow. Heavy power equipment is exceedingly durable and therefore purchases occur compartively infrequently. The final cost of this equipment is difficult to determine as the initial cost is only part of the total cost. Such purchases are much less affected by current price trends, for only when the need and justification of the equipment has been established is there a possibility that its actual purchase may be delayed or hastened by price considerations.

In the marketing of heavy power equipment, one of the most controversial questions is who the actual purchasers are. The problem of locating buyers has considerably complicated today's sales job. As a matter of fact, most heavy power equipment purchases are a compromise between the opinions of many men. It has been said that "industrial markets are men and men at work are jobs" and, therefore, according to some experts, the best method of approach in finding the buyers is to separate the possible buying parties in an industry separation according to their jobs.[1] However, the multiplicity of titles used in industry make the problem of locating the "keymen" or actual buyers confusing.[2] Buyers may have titles ranging from "design engineer" to "manager" to "electrician" and, therefore, it is undesirable to judge buying control by titles alone. The executive who decides to sell and advertise his product chiefly to works managers or superintendents may later find that he is approaching the wrong parties. However, some surveys have been made with regard to buying influence using titles as a reference. One of these was made by Ernst and Ernst, Industrial Accountants. It was shown that superintendents and works managers played a leading part in the buying of industrial equipment; general managers were next, followed by chief engineers and engineering departments.[3] The president occupied fourth place in the control of buying followed respectively by master mechanics, chief electricians, other employees, and the board of directors.[4] Many

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[1] Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934, Page 36.

[2] Ibid.

[3] Breyer, R. F. Commodity Marketing, McGraw-Hill Publishing Co., 1931.

[4] Ibid.

other surveys have been made to determine where the real purchasing power lies. Studies generally show that the power to decide that certain power equipment is required as well as the power to select the type and make of machinery to be purchased, is largely centralized in the hands of the same individuals. In other words, in most plants and utilities, the same individuals possess both "initiating" and "specifying" power.[1] These surveys also show that buying power for heavy power equipment lies with the men responsible for the production activities of the business rather than the general administrative officials. In utilities, these men are generally the station design engineers, production engineers, and maintenance engineers. In only the very large purchases do top administrative officials involve themselves with the "initiating" and "specifying" phase of the negotiation. The third thing that location of buying power surveys generally point out is that the actual buying power for installation is in many instances not possessed by the individual issuing the formal orders as a matter of a routine.[2]

Diagrams I, II, and III presented in the next three pages are typical organization charts of large utilities, municipal utilities, and medium to larger size industrials, respectively, in the Boston area. Since these are only representative they will not apply strictly to any one company. Before analyzing what part each individual may play in the actual purchase, the following outline is presented to show the essential steps of procurement in power equipment purchasing procedure.[3]

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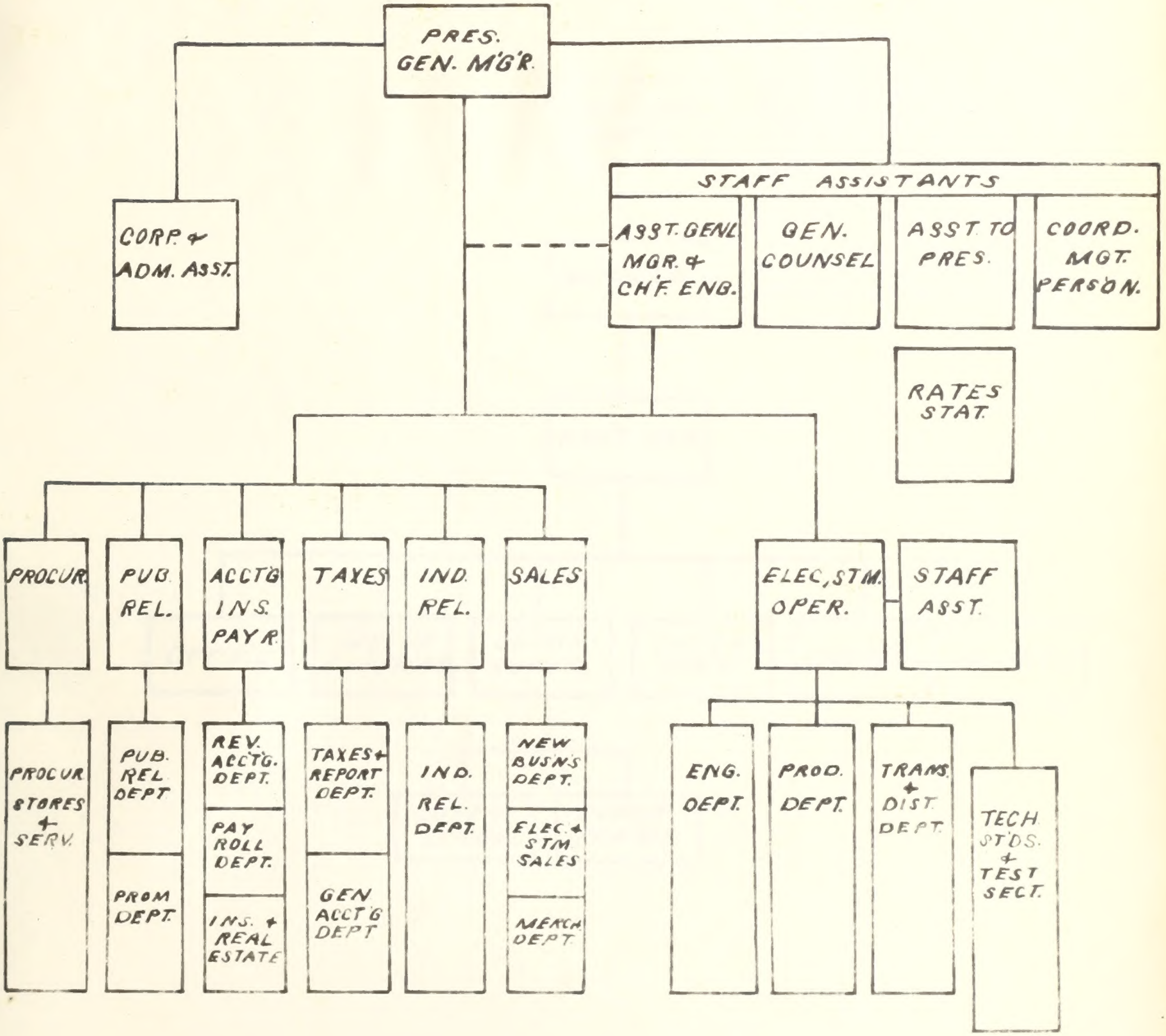
1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

2. Ibid.

3.. Lewis, Howard T., Industrial Purchasing, Business Publications, Inc. 1940.

DIAGRAM I

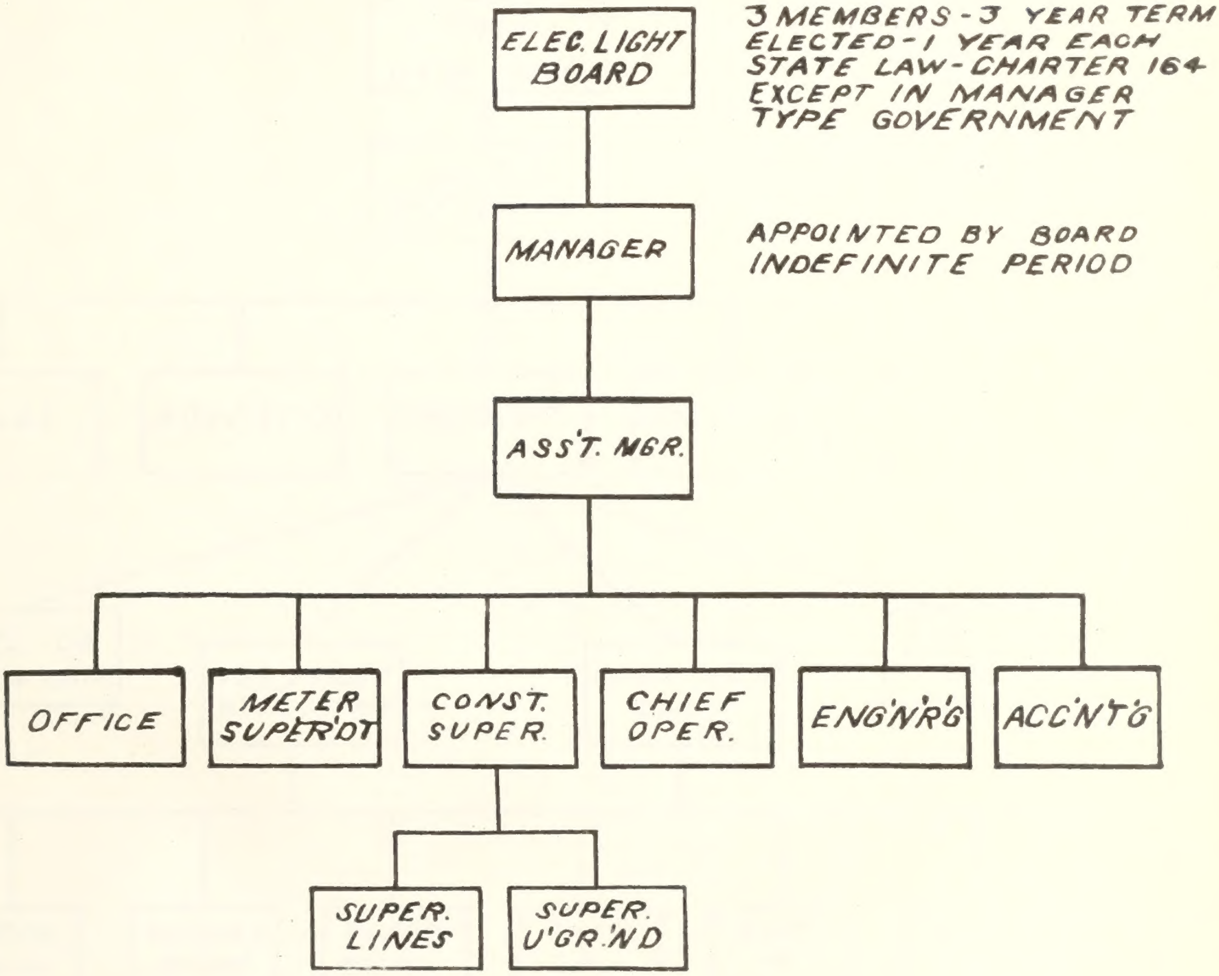
ORGANIZATION CHART OF A LARGE UTILITY
BOSTON AREA


PRES.
GEN. M'G'R.
CORP. & ADM. ASST.
STAFF ASSISTANTS
ASST. GEN'L MGR. & CH'F. ENG.
GEN. COUNSEL
ASST. TO PRES.
COORD. MGT. PERSON.
RATES STAT.
PROCUR.
PUB. REL.
ACCT'G INS. PAY R.
TAXES
IND. REL.
SALES
ELEC, STM. OPER.
STAFF ASST.
PROCUR. STORES + SERV.
PUB. REL. DEPT.
PROM. DEPT.
REV. ACCT'G. DEPT.
PAY ROLL DEPT.
INS. + REAL ESTATE
TAXES + REPORT DEPT.
GEN. ACCT'G DEPT.
IND. REL. DEPT.
NEW BUS'N'S DEPT.
ELEC. + STM. SALES
MERCH. DEPT.
ENG. DEPT.
PROD. DEPT.
TRANS. + DIST. DEPT.
TECH. ST'DS. + TEST SECT.

DATA FROM EDISON NEWS - VOL. 9, NO. 2
PUBLISHED BY BOSTON EDISON

DIAGRAM II

ORGANIZATION CHART OF A MUNICIPAL UTILITY BOSTON AREA


ELEC. LIGHT BOARD
MANAGER
ASS'T. MGR.
OFFICE
METER SUPER'DT
CONST. SUPER.
CHIEF OPER.
ENG'NR'G
ACC'NT'G
SUPER. LINES
SUPER. U'GR'ND

3 MEMBERS - 3 YEAR TERM
ELECTED - 1 YEAR EACH
STATE LAW - CHARTER 164
EXCEPT IN MANAGER
TYPE GOVERNMENT

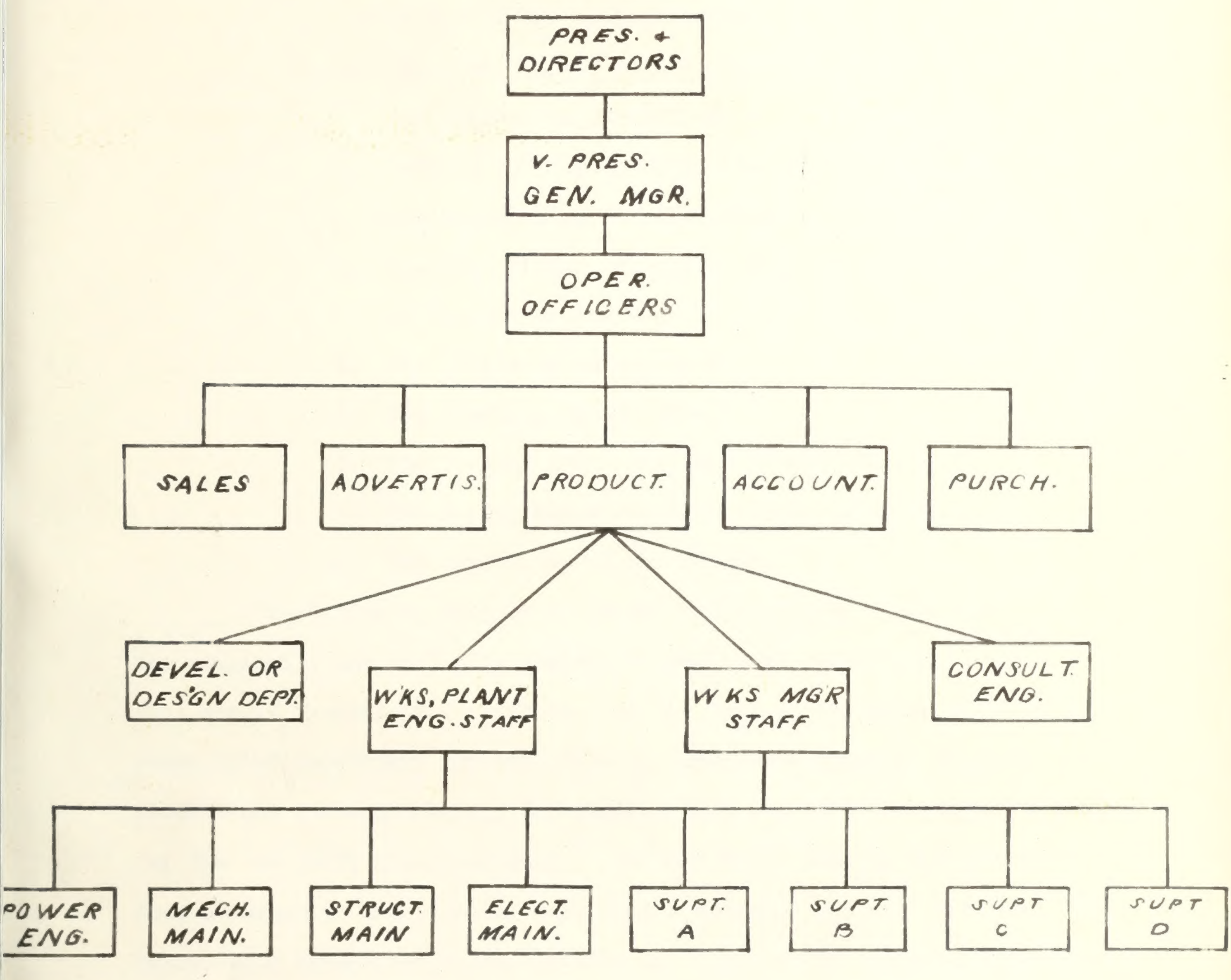
APPOINTED BY BOARD
INDEFINITE PERIOD

INTERIEWS— CAROL OLIVER, ASS'T MANAGER
BELMONT MUNICIPAL LIGHT DEPT.
LEO NIMBLETT, MANAGER
DANVERS MUNICIPAL LIGHT DEPT.

2/25/48

DIAGRAM III

ORGANIZATION CHART OF A TYPICAL INDUSTRIAL PLANT - BOSTON AREA


PRES. + DIRECTORS
V. PRES. GEN. MGR.
OPER. OFFICERS
SALES
ADVERTIS.
PRODUCT.
ACCOUNT.
PURCH.
DEVEL. OR DES'GN DEPT.
WKS, PLANT ENG. STAFF
WKS MGR STAFF
CONSULT. ENG.
POWER ENG.
MECH. MAIN.
STRUCT. MAIN
ELECT. MAIN.
SUPT. A
SUPT. B
SUPT C
SUPT D

SOME DATA FROM JOHN H. FREDERICK,
INDUSTRIAL MARKETING, PRENTICE-HALL

1. Ascertainment of the need
2. An accurate statement of the character and amount of the equipment desired.
3. The transmission of the purchase requisition to the purchasing department.
4. Sending out the inquiry, the request for bids, and the negotiation for the possible sources of supply.
5. Analysis of the proposals, followed by the selection of the vendor and the placing of the order.
6. The follow up on the order.
7. The checking of the invoice.
8. The receipt and inspection of the machinery.
9. The installation and performance follow-up.
10. The completion of the record.

Referring to diagram I and the above outline it is easy to see the complexity and the large number of people who can become involved in a single installation purchase. In the case of the large utility, the power sales department and the planning department together with the production, and engineering departments will probably ascertain the need for the new heavy power machinery. In this first step in the procedure, four departments and probably more than a score of men are involved. The engineering department which includes all station and field substation engineering, will probably make up the original specifications and make out a purchase requisition. This requisition will then probably circulate through the planning department for approval and the accounting department for cost purposes and through the financial management section so that an appropriation can be set aside for the purchase. The purchasing department with the suggestions from the production and engineering sections

will then send out requests for bids on the equipment. The analysis of the bids and the final selection of the equipment may well involve the engineering department for design reasons, the production department for performance analysis, the maintenance department on facility and costs of repair, and dependability, the purchasing department on initial costs and time for delivery, and top management on policy. The last steps in the purchasing procedure will involve the accounting and stores departments. Nine departments and probably fifty individuals would be involved in a major purchase of heavy power equipment by a large utility. In the Boston area, there are only three utilities that can be considered as large companies. They are the Boston Edison Company, the New England Power Company, and the New England Gas and Electric Company. The latter two are actually associations of small operating companies and the major part of their business does not come from the Boston area. Their branches cover many of the further outposts of Massachusetts and the Cape, New Hampshire, and Vermont, and although their central offices are located in Boston, they cannot actually be considered utilities in Boston area. For the purpose of marketing heavy power equipment, however, the manufacturer must concentrate his sales effort on the central offices in Boston.

The "initiating" and "specifying" power for purchases made by these large utilities in the Boston area is as widely distributed as in the general example cited before. However, in the Boston area, the engineering department (in one company, it is called the engineering design department) seems to have more authority than any other individual group.[1]

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[1] Information for this paragraph taken from the writer's experience in selling power equipment to the Boston Edison Co. Interview with Mr. J. E. Smet, sales engineer, Allis-Chalmers selling to New England Gas & Electric Company, March 1, 1948. Interview with Mr. H. O. Wells, sales engineer, Allis-Chalmers, selling to New England Power Company, February 28, 1948.

In one of these utilities the engineering department, with the cooperation of the production department, makes a formal written comparison of bids and generally a written recommendation if one can be made and justified. The top management generally reviews this recommendation and may return it the engineering department with comments or forward it to the purchasing department. Three possible alternates exist at that point. Either management can approve the engineering recommendation, in which case the purchasing department simply issues the order, or management may reverse the engineering recommendation (or in case there was no real engineering preference, management may make a definite decision) in which case the purchasing department would again just issue the order. The third case is when neither engineering or management has a particular recommendation, and the decision is then placed in the hands of the purchasing department for the awarding of the contract. Since the engineering recommendation (when there is one) is seldom reversed, the engineering department holds a primary position in "specifying" power. All three of the large utilities in the Boston area follow a similar policy although the actual procedure and formalities differ considerably. It is impossible to be more specific on this subject since purchasing procedure for this equipment is not rigid and almost every major purchase is an individual problem in itself.

Referring to Diagram II, it is easy to see that the organization of the municipal utility makes it easier to trace the origin of buying influence. The following towns have municipal electric stations, Hull, Wellesley, Norwood, Peabody, Salem, Danvers, Belmont, Reading, Wakefield, Gloucester, Sterling and others. Their organization, except where the town has a city manager form of government, is headed by the Electric Light Board according to chapter 164, of the laws of the Commonwealth of

Massachusetts. The Board consists of three members; an election for one member is held each year and the position has a three year term.[1] The board appoints a manager who is responsible to them for the operation of the plant and system in their jurisdiction. In the town management type of government, the town manager is considered the manager of all departments. Five selectmen who are elected to their position can act as a light board on request of the manager. Under this form of government, an appointed superintendent actually runs the Electric plant. The persons having the "initiating" and "specifying" power in the municipals in the Boston area is generally vested in the manager, (and sometimes the assistant manager if there is one) the engineer, and the electric light board. Which of these people holds the predominating influence depends on the particular municipal in question, but, at least the individuals influencing the purchase are small in number and comparatively easy "to get at".

With industrials in the Boston area, locating of the buying influence is even more difficult. Each large industrial in the area has its own way of handling heavy equipment purchases. For instance, the American Woolen Company has its plants located in the Lowell, and Lawrence area, and the chief engineer and his staff are also located in Lawrence. The chief engineer and his associates probably exert the major influence in large purchases, but the actual purchasing and "specifying" decision

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1. Information on municipals from interviews with:
Carol Oliver, Ass't Manager, Belmont Electric Light Dept., Feb. 25, 1948.
Joseph Price, Sup't Norwood Municipal Light Dept., Feb. 26, 1948.
Leo Nimblett, Manager Danvers Electric Light Dept., Feb. 25, 1948.

is made at their New York office where their top executives and purchasing department are located. A similar situation exists with the American Sugar Refining Company although they do have a purchasing agent in their Boston plant. The executives and top purchasing authority located in New York. In this particular company the chief engineer, who is actually the plant engineer, probably exerts the most influence in the actual purchase of heavy power equipment. At Bird & Son, Inc.; large roofing and floor covering manufacturers, the purchasing influence seems quite widely spread between the chief engineer, and his assistants, plant engineers, and the purchasing department. At the Hunt-Spiller Mfg. Co., a rather large foundry in Boston, the buying influence is centered in the office of the Works Manager and Purchasing Department. From this brief review of a few of the large industrials, a generalization as to the line of buying influence would not be of great value. However, these examples point out that purchasing is often actually performed by persons whose nominal title would denote that they were entirely devoid of this power. For instance, at the Draper Corporation in Hopedale, a recent purchase of heavy electrical power equipment was made upon the recommendations of the Chief Electrician and the superintendent of their Beebe River plant in New Hampshire.

To summarize this discussion on persons participating in the transaction, there are so many factors to be considered in the purchase of heavy power equipment, that many people become involved in the actual buying. Lewis summarizes the situation using data obtained from a survey on the purchase of major equipment.[1/] The number of individuals involved in the actual purchase ranged from one to nineteen, and the average for

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[1] Lewis, Howard T., Industrial Purchasing, Business Publications, Inc. 1940.

all transactions involving heavy capitol equipment was five. Less than one percent of the negotiations were entirely handled by one person, and in 9% were only two people involved.[1] In purchases made by industrial companies the general superintendent was involved in 53% of the transactions, the plant engineer in 40%, the department head in 37%, the president in 34% and the general manager in 21%; the purchasing office appeared in 92% of all transactions.[2] The selection of the actual type of equipment was made mostly by the general superintendent, the plant engineer and the department head. These executives were believed to be the most capable of making thedecision. In this connection, Lewis says that it should be noted that the salesman representing vendors influenced the type of product in but 25% of the transactions. This, of course, does not refer to the make of the equipment which was the function of the salesman and purchasing agent in a much larger number of instances. In the smaller purchases, the purchasing agent made the decision as to make of equipment to be bought in 28% of the cases and was exceeded in this function only by the general superintendent. In the larger purchases the officials of the company and the general superintendent were more influential in deciding the make of the equipment.

There are certain buying practices related to the purchase of heavy power equipment. A large amount of this equipment is bought by brand because of the excessive time and costs necessary to make technical tests. The purchaser must rely on standard brands for quality and per-

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[1] Lewis, Howard T., Industrial Purchasing, Business Publications, Inc. 1940.

[2] Ibid.

formance. For instance, it is riduculous to assume that an industrial or utility can test a large breaker or transformer. Buying is largely done on the basis of specifications. A lot has been done by both users and suppliers to make it possible for purchasers to buy on a basis of a definite quality or performance specification. Certain definite advantages have been claimed for this method of buying among which are the following:

> a) "Adequate specifications are evidence of the fact that thought and study have been expended on the consideration of the requirements for which a particular product or material is intended. The important thing is that the specification should actually fill the need -- no more, no less. To set the requirements at a higher level than necessary -- over specification -- will add to the cost without yielding returns to the user on the added investment. " 'Underspecification' also proves to be costly, contrary to the belief of purchasing agents that they are thereby keeping purchasing costs at a minimum." [1/]
>
> b) "Specifications constitute a standard in the measurement and check-up of materials as received from the suppliers. The supplier may make out the specifications, but the purchaser then relies on the integrity, and ability of the supplier to know his situation. A specification covering the precise requirements is considered the best and only assurance of obtaining entirely suitable material." [2/]

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

2. Ibid., page 67.

c) "Specifications are invaluable to the larger industrial consumer who usually obtains his material from several sources of supply." [1]

d) "Specifications insure fair competition in buying. Through their use, an industrial consumer is able to make known his precise requirements to competing suppliers in such a way that they will have a common understanding of his needs." [2]

e) "When specifications are drawn up on a performance basis, the purchaser is assured that if the product delivered does not give the desired results, the supplier will be responsible. The specifications may be set up by his own using department in cooperation with the purchasing department; by the supplier; by nationally recognized technical societies; or by the national government. Obviously, when a purchaser orders materials or products in accordance with a specification set up by his own organization he is making use of a study conducted in connection with his special requirements and his is benefiting from the research and experimental work of which the specification is a result. The danger in using his own specification is two fold: (1) The specification may be carelessly drawn up and thus may not have the anticipated results, since the exact products or

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934, Page 68.

2. Ibid., Page 68.

materials desired will not be obtained. (2) The specification may be so elaborate and detailed as to defeat its own purpose, since it may cause unreasonable costs."[1] This may also result in an unwillingness on the part of the manufacturer to quote prices when unduly elaborate specifications are used.

Assuming that the buyer has issued specifications and received quotations from several suppliers, he must then make a decision as to what make of equipment to purchase. We have already determined the people responsible for making the purchasing decisions and now we shall study the motives which induce people to buy. A salesman does not sell to a company but rather to certain individuals acting as agents for that company. Since there are a number of persons exercising some influence in a purchase it is desirable that the seller approach each of these individuals with an appeal best adapted to that man's particular part in the final purchase. The chief engineer must be appealed to on one basis, the shop foreman on another, and the purchasing office on still a third. From the point of view of the purchaser, there are specific problems in heavy power equipment procurement.

First, there are the general principles which should control the selection of power equipment.[2] The equipment should be judged from the broad view of original costs, later costs, savings to production costs, and how it fits in with existing plant facilities. All engineer-

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[1] Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934, Page 68.

[2] Lewis, Howard T., Industrial Purchasing, Business Publications, Inc. 1940.

ing points should be brought out. Beyond these questions, are ones which only the purchasing or planning department and the management can decide. Do expected engineering modifications and changes make the purchase of the equipment at this time desirable; and is the future outlook of the company such as to warrant this purchase; and, does the company have the funds with which to buy the theoritically most desirable equipment, or would the less expensive somewhat less efficient equipment be the more judicial investment; these are the special questions which are important in the final decision, but they are not questions which the engineer is qualified to answer. These questions emphasize the importance of having many individuals involved in the purchase of heavy power equipment.

The second problem in heavy equipment procurement is the analysis of the cost factors immediately applicable.[1] Each purchaser must study, for the particular installation in mind, the relation of quality and service to price. A survey made by the National Association of Purchasing Agents reveals the importance of quality and service as follows:

> "That of all the fundamentals, the buying of quality is the most important as evidenced by the fact that in reply to over five hundred questionnaires, 85% of all responses placed quality in the first position of importance as compared with such other purchasing factors as price, service, the financial responsibility of the vendor reciprocity, etc. An additional eleven per cent ranked quality as second in importance, giving preference in various instances to price, service, and to vendor's responsibility. Every other pruchasing agent ranked quality in third place. It is thus evident that the overwhelming opinion of purchasing agents is

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1. Lewis, Howard T., Industrial Purchasing, Business Publications, Inc., 1940.

> that the buying of the proper quality is their most important function." [1]

Best quality is defined here as that quality best adopted to the particular need. The primary responsibility for quality rests with the using department. The purchasing executive's responsibility is not confined wholly to the actual placing of the order. He is concerned with all the factors of procurement. High initial cost must be balanced by increased output, efficiency and the obsolence factor, in the comparison of competing machines.

The third factor in the procurement of heavy power machinery is the problem of engineering service. [2] As we have said technical sales service is provided by a vendor to a potential or actual purchaser of heavy power equipment, to determine the designs and specifications of the machinery believed best suited to the particular requirements of the buyer and also to insure that once bought, the equipment functions properly. The availability and the quality of the service of sales engineers and technical assistance should be another big factor in equipment procurement, and should only be accepted by the prospective buyer when there is a reasonable possibility of an order for the offerer.

The fourth element in the procurement problems of heavy power equipment is the disposition of absolete or replaced equipment if there is any. [3] There are five possibilites:

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[1] N. A. P. A. - Handbook of Purchasing Policies and Procedures, Vol. I, Page 229, New York, National Association of Purchasing Agents, 1939

[2] Lewis, Howard T., Industrial Purchasing, Business Publications, Inc., 1940.

[3] Ibid.

1. The old equipment can be traded in on new equipment. This is or was a possibility on some types of transformers and a few other types of equipment, but in general "trade-ins" are rare in the heavy power equipment field.

2. It is often possible to sell the smaller old machinery to used equipment dealers. This is particularly true of circuit breakers, transformers, and rotating machinery.

3. Occasionally, it is possible to find a buyer, directly, who can still use equipment that is being displaced from another plant.

4. Often, it will be decided to keep the absolete equipment for standby or emergency service.

5. When there is no other altenate, the equipment is sold for scrap.

6. The fifth major factor in installation purchasing is the financing of the purchase. [1] In only a very few cases can all of the purchasing program be carried on under the company's funds. For large scale expansion or replacement, there is a choice of borrowing from banks, issuing long term bonds or issuing common or preferred stock. The choice of these is a financial problem and not a part of this marketing discussion.

The sixth problem in heavy power equipment procurement is the timing of the purchase. [2]

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1. Lewis, Howard T., Industrial Purchasing, Business Publications, Inc., 1940.

2. Ibid.

The elements to be considered are the delivery time required, the tieing up of capital funds, the installation and "break-in" period, price considerations etc. This factor can be of primary importance in a large utility when you have hundreds of items being purchased andlimited storage and installation facilities. The seventh factor is the settling of certain legal questions and the eighth factor is the actual selection of the source.[1]

These eight problems in equipment procurements when reversed in psychology become buying motives. Any detailed discussion of buying motives other than what has been said will not be under taken here. The motives of most heavy power equipment buyers are rational in comparison with other types of buying. The user will use reasoning and judgement, as the efficiency of his business in many cases will depend on it. Friendship and the other emotional appeals are also very important, but are believed more weighty by salesmen than they actually are.[2] Here, again, many factors influence whether emotional or rational features will predominate. Certain heavy power equipment is quite steriotyped, — such as transformers, and policy and friendship can often be the most important factor in the selection of one maker over another, Certain users and certain producers also stress emotional appeals more than a rational approach. The following is a list of possible rational buying motives:[3]

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1. Lewis, Howard T., Industrial Purchasing, Business Publications, Inc., 1940.

2. Interview with H. O. Wells, Senior Sales Engineer, Allis-Chalmers, March 28, 1948.

3. Reed, Virgil D., Advertising & Selling Industrial Goods, Ronald Press Company, 1936.

1. Efficiency
    - a. Performance
    - b. Practicability
    - c. Increased capacity
2. Economy
    - a. In money
    - b. In use or operation
    - c. In time
3. Quality
    - a. Good materials
    - b. Good workmanship
4. Speed
5. Strength
    - Resistance to shock and vibration
6. Durability
7. Dependability or Reliability
8. Accuracy
    - Metering
9. Law Maintenance
10. Simplicity
    - a. In construction
    - b. In operation
    - c. In application or assembly
11. Standard type
12. Ease of Operation
    - a. Physical
    - b. Greater convenience
    - c. Handiness

13. Increased Profits
14. Weight
15. Space Saving
16. Adaptability
17. Availability
18. Obsolescence
    - a. Need of Improvement
    - b. Need of Replacement
    - c. Need of Additions
19. Safety
    - To Employees
20. Conformance to Specifications
21. Adjustability
22. Ease of Repairing

There are other motives which are somewhat less readily analyzed. It is necessary to use practical psychological thinking to analyze the buyer and decide what motives to use. The following factors can be used in some cases, but must be minimized or omitted in other instances:

1. Service
    - a. Only if past experience is good or record is enviable
2. Availability or parts and future supply
    - a. Depending on convenience, and overall picture
3. Reliability and reputation of the manufacturer
    - a. Can be overstressed where all are reputable manufacturers
4. Completeness of line

a. Often not too important

5. Price of the Product
    a. Can work for the vendor on one case and against him in the next.

    Not likely to build long term relations

6. Financial and Managerial Connections
    a. Use of this motive often causes antagonism in the purchasers organization

7. Friendship and family connections
    a. (same as (6))

8. Research and Pioneering
    a. Generalities may not influence sale, but can establish reputation

9. Cooperation in solving problems

10. Availability of information on product

Results of interviews and the writer's experience in the Boston area indicate the following:[1]

1. Of those interviewed, all but one salesman and agent selling heavy power equipment stated that they felt that the engineering department was by far the most important division, of those involved in the purchasing, to be satisfied by the sales engineer.

2. Rational buying motives were often upset by individual problems. One utility had to buy equipment on a reciprocity basis. One utility was by history a very large user of one particular manufacturer's equipment. A third utility had

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[1] Data as to sources will be found in Appendix, B-

a financial tie-up with a pump, compresser, and condensor manufacturer. While these factors did not exclude any particular manufacturer, they were definite factors that had to be considered.

3. All those interviewed considered the service factor one of the most important elements in serving all classes of heavy power equipment users.

4. Price and delivery were considered more or less important, depending upon the customer. For municipals, and government institutions price was considered the most important factor, but this motive was considered secondary to quality, for most other customers. Performance, standardization, part experience and price were all important buying motives.

5. Those interviewed felt that top management entered into the negotiations only in the largest transactions. In other cases, if called on, they generally approved the decisions of their associates.

One individual, who has not been considered in this discussion so far and whose influence can be the deciding factor in many sales, is the consulting engineer. In some cases the consulting engineer acts as the buyer and even as the purchasing agent for a company for material such as heavy power equipment. A great many utilities and large industrials employ consulting engineers. They serve many necessary purposes. They can remove part of the responsibility for engineering from the hands of a few engineers in a utility or industrial and can also assume part of the job of purchasing equipment. They can also provide expert advice on specialized subjects, where utilities and in-

dustrials could not afford to employ such experts on a full time basis. A few of the leading consulting engineers doing power work in the Boston area are:

Stone and Webster Engineering Corporation
Charles T. Main, Engineers
Jackson and Moreland, Engineers
Fay Spofford and Thorndike
Doble Engineering Company
Metcalf & Eddy
Thompson and Lichtner Company, Inc.
Thomas Worcester, Inc.
Burns and Kenerson
Whitman and Howard

When these firms are employed to build, remodel, or change power plants for utilities or industrials they usually assume the greater part of the "specifying" function of the buyer. Some of the companies like Stone and Webster actually issue their own purchase orders for equipment going into a customer's plant.[1] In such a case there will be two engineering sections and two purchasing sections to reckon with; one of these groups will be the user of the machinery and the other the consulting engineering firm. All purchases are made, of course, subject to the approval of the user, so that the number of people involved in the transaction becomes even larger than before. The complexity of these negotiations is increased by the geographical factor sometimes existing between the consulting engineer and the user. Stone and Webster located in Boston has customers such as Gulf States Utilities and Pacific Gas and Electric who are more than twenty-five hun-

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1. Interview with S. M. Osthagen, Allis-Chalmers, March 3, 1948.

dred miles away. It is then necessary for the vendors' sales engineers to cooperate to sell (from two distant district offices) the user and the consultant.

In general the same buying motives prevail for consulting engineers as for the users themselves. More factors can enter into such a transaction due to the complex idea of two engineering and two purchasing sections and the number of people involved.

Chapter VII

OTHER MARKETING FUNCTIONS AND SALES AIDS

One of the most important functions in the merchandising of heavy power equipment is the analysis of the market and product. At least five different types of market studies have to be made.[1]

A. A Study of the Market for the Equipment

The first direction for investigation in a market analysis is the application of the machinery to each industry. The characteristics of this application may be helpful in deciding sales techniques; and, it is essential to the salesman and service men that this information be available. How to sell to an industry will also depend on the number of the buying units in each industry. The size and purchasing power of each industry is fundamental to the decision as to how much time can economically be spent in selling to anyone division of the total market. In making the market forecast any new methods affecting the use of the equipment should be considered as they exist now and will exist in the future as well as the modernization program for the product. Along with this, the long term trend of competition must be considered. To complete the analysis, price trends and a forecast of business conditions will be very revealing.

B. A Study of the Buying Practices of the Market

As we have already stated it is essential for the salesman and advertising department to know not only who buys, but the appeals that motivate the buyer to purchase. It is also important for

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[1] Elder, Robert F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1935.

the marketer to know the position of his competitors in the market, and to know further the buying practices of his prospects. Such other items as seasonal variations in purchases and the time taken in transactions are studies that will result in a more economical selling program.

C. A Study of the Relationship with Customers

For forecasting and the training of salesmen, it is desirable to have a knowledge of the relationships that exist and can exist with customers. Up to date information and customers' opinions of your machinery, and its comparison with competitors, will be invaluable to the sales engineer. The average per centage of customers purchases that you get will give the vendor an idea of what goals to shoot at and some means of estimating the quality of performance of his sales force. Behind these figures and percentages, the reasons why prospects buy your equipment or, likewise, any reasons why prospects patronize competitors is information that should be in the possession of the sales department.

D. A Study of the Relationships with Prospects

The study should reveal how many good prospects become customers, how successful the sales force is at turning leads into prospects, and how closely co-ordinated the advertising program is with the sales force. This study will also indicate the affectiveness of the advertising campaign in bringing in leads.

E. A Study of the Performance of the Sales Organization

This analysis will be a check on the performance of the other studies as well as the results of the salesmen in the field. Possibilities of reducing sales expense and increasing efficiency may result from this study. Also, information may show how frequently sales calls should be made to give desired results and still be within the man-

power limits. The survey may discover what sales aids bring results, and the handling of correspondence, orders, and bulletins should be included in the study.

To have the right product is enviable as per the old maxim "goods well made are half sold". Having a good product and sales organization is not enough as conditions are not static. Even to keep a leading position in the field, it is necessary to constantly improve product and merchandising procedure.

The product planning function is not necessarily part of the merchandising procedure, but it is a part of thw whole marketing phase of the business. No detailed analysis of product planning will be attempted here, but the elements of product planning that affect merchandising will be briefly stated. The first element in product planning is diversification.[1] There are three phases of product diversification in heavy power equipment. First, there is the creation of new products. It is possible to establish a flourshing business with a certain set of products, but our economy is one of constant scientific progress so that power machinery eventually becomes out dated and new equipment must be brought out.

The second element in power equipment diversification is the adaption of existing products to new uses. This possibility often makes it advisable to use installations after they are outdated for the use they were originally intended for. The third phase or possibility of diversification in the machinery field is the adaption of

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[1] Elder, R. F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1935.

existing products to changing demands. Smaller sizes and more flexibility will often be demanded when power is in less demand and greater capacity will be desired when greater amounts of power are required. Diversification in selling is as important as in product planning. The dependence on a single customer or even a single industry tends to make the economy of an equipment manufacturer unstable.

The second division of product planning is simplification.[1] The elimination of obsolete products is essential to the reputation of the company in the field. The offering of dated equipment indicates poor judgement and lack of progressiveness on the part of the manufacturer. Superfluous items and varieties should also be eliminated as they prevent adequate production, for purposes of cost reduction, of the main products. This simplification function is a responsibility of the marketing organization as well as the planning committee. The sales organization is best able to determine how many varieties of a product must be offered and how much simplification and standardization will be accepted by prospects and customers.

Grading and quality standards are also part of product planning.[2] In the heavy power equipment field, the American Institute of Electrical Engineers, the National Electrical Manufacturers Association, the American Society of Mechanical Engineering, and a few other groups generally set the grading and quality standards for the entire industry. To meet with these "standards" is often the only reliable quality specification that a purchaser can consult.

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1. Elder, R. F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1935.

2. Ibid.

Identification such as brands and trade marks are the fourth factor in the product program.[1] The choice of a suitable and outstanding "label" may do much for the recognition of the equipment. The General Electric "GE" has become a mark accepted by heavy power equipment users all over the world. Of course, the machinery established the brand, not the brand the machinery, but the correct use of identification when viewing an installation sticks in a customer's mind and is a psychological sales factor. Along with identification goes the factor of packaging.[2] Formerly, many power equipment people have believed that the appearance of equipment is not an element in its sale. This is a definite falacy as has been proved in later years. Westinghouse started to think in terms of attractive design back in 1930 when they appointed a new director with the duty of teaching engineers artistic design, streamlining and color.[3] Today, even steam turbines have a smooth streamlined exterior that has a functional modern appearance.

One of the other major marketing functions is Industrial Sales Promotion. In large heavy equipment manufacturer's organizations these functions are usually adopted by one or more of his sales promotion departments. These usually carry titles such as "Industrial Sales Department", "Central Station Sales Department", "Marine Sales Department", etc. This nomenclature is somewhat misleading as their primary duties

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[1] Elder, R. F., Fundamentals of Industrial Marketing, McGraw-Hill Publishing Company, 1935.

[2] Ibid.

[3] Reed, Virgil D., Advertising and Selling Industrial Goods, Ronald Press Company, 1936.

are those of sales promotion. The first function of a sales promotion group is the development of new markets.

In product planning, the machinery is first perfected in the research laboratory and then goes through a development stage, before going into commercial production. Sales promotion corresponds to the development stage in product planning. In seeking out new markets, imagination and ingenuity are used by the sales promotion department. Sometimes new selling ideas are used and sometimes missionary men are sent around the country to investigate possible new applications and other considerations for the obtaining of new markets.

The second function of the sales promotion division is to render service to the sales force. This usually takes the form of developing material to increase the selling efficiency of the regular sales force. The actual result are portfolios of advertising material designed specifically for use by the salesmen, and the writing of sales manuals. A sales manual is to be distinguished from catalogues, as the manual consists of sales and company information for use specifically by the salesmen. Another way in which the sales promotion division can be of service to the sales force is in developing contacts and in devising direct sales correspondence as a mail aid. They also develop motion pictures and slides for use in lectures. In performing this function, the promotion division is also helpful to the advertising department. It is customary for the sales promotion division to be in on all advertising campaigns along with the product department. They also sponsor a great deal of direct sales correspondence from their division and this particularly helpful where sales agents are used in the marketing of the equipment. The promotion departments are usually responsible for the exibitions and trade shows in their particular field. In

the power field, trade shows and exhibits by the heavy equipment manufacturers are usually staged in connection with the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, and other professional and trade groups. Cooperation with these groups as well as the careful and proper staging of these shows and exhibits can be excellent sales promotion. The last, but certainly not the least important, function of a "central station" or "Industrial" sales promotion department is to co-ordinate the company's various equipment items that go into one plant or are otherwise related. This may take the form of making a proposal or bid on a complete power plant or actually coordinating equipment to make it have the appearance of a standardized design. Also, the sales promotion division can make studies of the equipment produced by the manufacturer in order to establish the standardized sizes needed for a complete line.

We have already mentioned the use and possible origin of sales manuals and their importance as another marketing function. To be a real sales aid for industrial and heavy power equipment sales engineers, the manual must be complete in the following respects. 1/ It must clearly and intelligibly define the sales policies of the manufacturer. This policy review must include data as to terms of sale, freight allowances, warrantees, trade-ins, rates for service engineers, crating information, etc. The manual should present briefly enough sales information to make it possible for every salesman to use the most efficient methods of selling as practiced by the sales force as

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

a whole. The sales manual may also state certain pros and cons of the manufacturers equipment and also a list of prospects possible questions and the answers. It will also present a list of installations and a general statement of the engineering progress of the company in the particular field.

The complete manual willshow the organization chart of the company and will explain how the sales division works with the rest of the company. Methods of handling orders, inquiries and various types of correspondence will be outlined. The sales manual should stimulate enthusiasm on the part of the sales force toward the manufacturing, engineering and administrative parts of the company. The presentation of the complete information on the companies products is often reserved for the price books, but for the purposes of this paper we will consider them together; and as one subject.

Therefore the manual and sales book must contain the complete design, engineering, application, and price information that will be put in the hands of the sales engineer. For heavy power equipment, the make-up of the sales manual should be of a loose leaf type, numbered so that new sheets can be easily installed. Not only are there continual changes in price, but also some remodeling and modernizing takes place in the design. The information should be easily readable and presented so that a prospect can be shown the book if the salesman deems it desirable.

The writer made a survey on the make-up of sales manuals and price books as desired by sales engineers selling heavy power equipment in the Boston area to various sizes and types of concerns. The results were as follows: [1]

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1. Information as to data is in Appendix B-

Table IX[1]

SALES MANUALS - MAKE-UP

What should be in a Sales Manuals and Price Book (if combined)? Should the following items be in your sales manuals?

1. Weights and dimensions?	70% said Yes
2. Materials and specification of important parts (of the equipment)?	70% said Yes
3. Method of application of items of equipment?	90% said Yes
4. List of actual results obtained by customers? or just a list of users?	20% wanted list of actual results 80% wanted list of users
5. Method of manufacturing?	30% wanted information on method of manufacture
6. Pictures and installation photographs?	80% thought pictures & photographs helpful
7. Brief history of company	30% thought this advisable 50% recommended separate book on this subject
8. Answers to common objections from prospects?	70% thought they needed this information published
9. Sales talks on sales points for major products	80% said Yes
10. Combined sales manual and price book?	30% for combined sales and price book
11. Should sales book be presentable to customer or separate sales aids?	100% in favor of separate sales aids, only 20% thought book should be presentable to customer
12. Remarks on sales books, price books, or bulletins?	

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1. See Appendix B-

Under the subject of remarks most salesmen thought that price books and sales manuals in use by the salesmen should be very complete but that it was unnecessary and even undesirable to make this information available to customers except at the discretion of the sales engineer handling the account. They also felt these books should be brief in written form as there is so much data that could be presented on heavy power equipment that salesmen would not use it.

Another sales aid closely related to ones that we have just discussed is the catalogue. As strictly defined, the catalogue is a printed and illustrated article covering the information which the typical equipment buyer wants to know or should know about the manufacturer and his product and services. 1/ Catalogues are generally sent to a customer before he is called on by a salesman or are used as a filler to be left by the salesman when he is interviewed by the buyer. Since heavy equipment purchasers almost always see salesmen before buying, the catalogue acts as a preliminary source of information regarding the productor line of products. The buyer may keep the catalogue as a reference to have at hand, or the catalogue may also supplement information presented in business and trade papers. The catalogue may be a "silent salesman" and represent the manufacturer when a personal representative is not present.

The essential characteristics of the properly compiled catalogue are: 2/

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1. Frederick, John H., Industrial Marketing, Prentice-Hall Publishing Company, 1934.

2. Lewis, Howard T., Industrial Purchasing, Business Publications, 1940.

1. The catalogue should be usable in form; that is, they should be indexed, alphabetically arranged, up to date in information, include ample technical data, and be written so as to be of use to both engineers and purchasing agents.

2. The description of the products should be specific, definite and easily understood. The question of the amount of material to be included is debatable, but the tendency seems to be to make the story more complete rather than being too brief.

3. The catalogue should be so designed and published that they can be easily filed and found when desired.

4. Approximate price data and shipping terms should be stated.

From interviews with buyers in utilities and municipals and their engineers, as well as from the writer's experience in the Boston area, it has been discovered that the complaints that are made concerning catalogues are usually one or more of the four factors just stated.[1] Most of the salesmen believed also, that for heavy power equipment, the catalogue should be complete enough to arouse customer interest and present enough information to tell him what the product is and how it is used, but not enough for the prospect to make the actual application.[2] The salesmen believed that heavy power equipment was too complex to be sold without the application being checked by a

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[1] See Appendix B for all those interviewed.

[2] Ibid.

trained sales engineer.[1]

There are two types of catalogues; general catalogues present all of the manufacturer's line of products, or sometimes those just applying to an industry. The other type is called the special catalogue which covers only oneproduct or a certain line of products. Interviews with buyers in larger utilities and municipals, and experience in the Boston area, reveals that most users prefer the general catalogue; the larger utilities preferred that these catalogues be divided into several volumes for handling purposes and suggested that this division be made by line of products.[2] Then, several engineers could use one manufacturer's catalogue at the same time.

Catalogues are also classified as to method of distribution.[3] If they are sent out to a list of potential customers by mail or by salesman they are being distributed according to the "broadcast" method. The "hold-back" method is the one whereby the manufacturer waits for requests for copies from some other means, such as advertising or sales calls. The obvious limitation of this method is its waste of sales opportunities because the catalogue is not functioning at all in the offices of many prospective buyers. The third type of distribution is by the "pre-filed" method. This consists of the filing of the catalogue along with those of other manufacturers before they are distributed to potential customers. This system is wisely used in the industrial market and practically eliminates both kinds of waste inherent in the other

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1. See Appendix B, for all those interviewed.

2. Ibid.

3. Walter, L. R., Effective Marketing, McGraw-Hill Book Co., Inc., 1938.

two types of distribution. This method is only applicable, however, where information is to be presented and is therefore, not particularly adaptable to heavy power equipment. The annual "A. S. M. E." catalogue is of the "pre-filed" type.

Another sales aid which is being used to some extent in the marketing of heavy power equipment are visual presentations. The material is designed for a salesman to use during interviews. The purpose is to give an impression visually instead of just orally. The material consists of photographs, charts, curves and even models. One company has a "model unit-substation builder set" which allows the sales engineer to errect a unit substation of the type the prospect is interested in, right on his desk. Several companies have printed display material to be used by the sales engineer to spotlight the important sales points and to present the "clinching sales arguments" tried and found most effective by experience. They can represent the composite of the best selling experience of the entire organization. Other marketing functions provided by heavy power equipment manufacturers include service and repair part facilities. The service men that heavy power equipment manufacturers offer to customers include mechanics, electricians, engineers and specialists an every phase of the equipment that is installed. Repair part bulletins are issued and many producers often offer special inspection and repair programs.

There are other sales aids, and new ones constantly being developed to make the marketing program more efficient. One of the more recent additions to the services offered by heavy power equipment vendors are electrical design boards. These machines allow the customer to set up complex circuit problems involved in their system and obtain answers that would be extremely difficult to obtain by normal procedure.

Many vendors provide lectures for technical meetings. The manufacturers trade associations often provide statistical reports on power consumption now, and forecasts for future operations that are of great value to users of heavy power equipment. All of these aids as well as the marketing functions described in this chapter can only be applied with the cooperation of the salesman, sales department, advertising department, sales promotion personnel and the product departments, themselves. In adopting these additional merchandising elements, the heavy power equipment manufacturers hope to establish an integrated and successful selling program.

Chapter VIII

ORGANIZING FOR SELLING "INSTALLATIONS" IN THE BOSTON AREA

The first step in organizing the marketing program of a heavy power equipment manufacturer in an area is to establish the sales goals and sales objectives. The sales goals, are usually measured in terms of sales volume. For an area such as Boston, it is comparatively easy to determine potential sales possibilities for any reasonable period such as a year, and then determine what share one manufacturer is likely to get based on past experience and future prospects. On the basis of such estimates, quotas can be set up for the sale of each product. These goals may be higher, the same, or lower than for the previous year depending upon the conditions. In recent years, heavy power equipment manufacturers have enjoyed a larger market for their products than ever before in their history.[1] These manufacturers have been selling from the "deficit side" of the market (sometimes called the "sellers' market")[2] The real deficit of heavy goods in the power field is such that even now three years after the end of World War II, large turbines and transformers have delivery dates extending more than three years after a purchase order is placed. As the deficit of goods is reduced and the vendors must again sell on the "surplus side" of the market, most heavy power equipment manufacturers in the Boston area will be forced to reduce their sales goals.

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[1] Interview with Jim Reed, Commercial Research Dept., Allis-Chalmers, December 18, 1947.

[2] Breyer, R. F., The Marketing Institution, McGraw-Hill Book Company 1934.

Manufacturers have various ways of establishing the sales goals and estimates for an area. In one company, the Commercial Research Department, from surveys and data in their possession, establish sales potentials for each product for all areas covered by the field organization.[1/] From these potentials, data on the company's competitive position, and from other related factors such as general business conditions, the actual sales estimates are formulated.[2/] The Westinghouse Company has an estimating system which is just the reverse of the above.[3/] The sales organization sets the original goal based on the estimate of each customers' purchases for the next year, not only for their own equipment, but also for that of competitive manufacture.[4/] Their commercial research division may revise these estimates if they seem unreasonable in comparison with their data in potentials.[5/] Other than setting goals for a sales department to drive at, these estimates serve as a basis for the allocation and concentration of salesmen.

Other sales objectives may be such things as introducing a new product or stimulating sales in one particular line or increasing the efficiency of the sales force. They may possibly desire, also, to gain a certain number of new customers or establish better relations with their customers; or, possibly there are other objectives. At any rate, the salesmen should be cognizant of the goals and objectives so that he

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1. Source confidential.

2. Ibid.

3. Interview with J. R. Reed, Manager Commercial Research Department, Allis-Chalmers, December 18, 1947.

4. Ibid.

5. Ibid.

can accomplish them and have an incentive for his performance.

Along with the establishment of the sales objectives, an elementary market analysis must be made.

"Market research is finding out what goods can be sold; where sold at a profit, and when and how best to sell them."[1]

The market research and analysis necessary at this point by the field organization is concerned with the three primary elements, product, sellers, and buyers.

1. A sales analysis must be made to decide where effort and time must be exerted.
2. A consumer survey is required to decide who will be the prospects for the next year.
3. An appraisal of the competitive position is desirable to decide what the sales problems are; and what changes in the product are desirable.

Next essential sales steps is to get your product right, keep it so, and price it equitably.[2] In the heavy power equipment field, it is the responsibility of the sales force to keep the factory up to date on parts of the machinery that they find inferior or unsatisfactory. Possessing this information, the design engineers at the plant will take it on themselves to remodel the equipment. The pricing of the product, however, is an element that the sales force believes in normal times, should be left to some extent in their jurisdiction. This has resulted in a prevalence of price cutting to get "desirable jobs".

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1. Walter, L. R., Effective Marketing, McGraw-Hill Book Company, 1938, Page 230.

2. Ibid.

To eliminate this, the heavy electrical power equipment industry have more or less established competitive prices for the same equipment. The mechanics of such an establishment are a matter of conjecture; it may be that the leader in the industry sets the price and the others follow the policy of staying with the largest firm, but at any rate the prices for the same electrical equipment are close for all manufacturers. The industry also follows a one-price policy and varies only on a well defined publicly announced principle, and the same applies to any trade discounts which are very unusual at the present time. There are no quantity discounts, and terms are not generally an element influencing the sale. They are usually left open for discussion unless the purchase is so large as to require "progress payments". It has been found that firm prices bolster "good will", for if you sell at what the market will bring, customers lose confidence.[1/] It is also poor policy to have only a price appeal, as the manufacturer will lose business if undersold. If the price is maintained, the vendor can still sell engineering, and quality.

It must not be mistaken from the above, that the price element has been completely lifted from the marketing consideration. In the first place, prices of electrical equipment are not exactly the same and vendors will offer lower prices when they believe it will secure the order; in the second place, the comparative similarity in prices of electrical apparatus does not extend into the mechanical field. In the third place, as long as there are some buyers who weight the price factor so heavily that it is the controlling factor in letting contracts, vendors will "cut" prices. In the Boston area, some

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1. Philips, C. F., Marketing, Houghton Mifflin Co., 1938.

municipals, and all government agencies are forced to purchase the lowest priced equipment that meets their specifications.[1] Of the buyers interviewed in the Boston area, all indicated that price was at any rate one of the three most important factors, along with quality, and engineering design.[2]

The third step in organizing for selling is to learn where, to whom, and how best to sell. This information is usually gained through market investigations. We have already discussed the characteristics of the heavy power equipment market. These included the prevalence of direct sale and by the company's own salesmen, and also the large number of people within and outside the prospect's organization influencing the purchase. In a previous chapter, it was shown that the purchasing agent is not necessarily the person responsible for the "specifying" of equipment, but the persons were identified who in different cases did exert the most influence. The channels of distribution and the types of advertising used for heavy power machinery were elaborated. It was also shown that buying occurs when installations become obsolete and when there is an expansion program.

The necessity for having trained sales engineers was shown to exist because the buyers are generally well acquainted with the product and because the subject involves so much technical knowledge. The large sums of money involved, the frequent use of consulting engineers, and the typical sales procedure of a general negotiation were elements that were outlined. We will now look into some of the factors that have been omitted from the discussion.

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1. Interview with Leo Nimblett, Manager of Danvers Electric Light, February 25, 1948.

2. See Appendix, B- for list of persons interviewed.

Probably the best way for a sales engineer to start to sell a utility or large industrial is to map out the customer's organization.[1] This involves a mental or written analysis of the company starting with the directors and high officers and continuing through department heads, and assisting personnel and the consulting engineers. The evaluation of the importance of personnel to buying is a continual process as the influence of these individuals changes. The alert salesman will also make mental personality studies, as what appeals to one person does not necessarily appeal to another. A good thing to know about a customer that you see frequently are their hobbies and avocations as well as their likes and dislikes. Sales engineers will find that intimacy with and the investigation of customers' plants and processes will put them on a friendlier basis with the prospect and also prepare them to be of more service to the buyer.[2] The sales engineer should know the customers plans and policies toward maintenance, replacement and expansion. Any knowledge that he can get of their financial conditions and connections will help explain their actions when purchasing major installations.

The above may be summarized into three sales engineering principles.[3]

1. The analyzing of technical and business conditions which relate to the customers' problems.

2. The visualizing of the exact benefits that the

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1. Lester, Bernard, Sales Engineering, J. Wiley and Sons, 1940.

2. Ibid.

3. Ibid.

customer will derive from the product.

3. The dramatizing or expressing of facts so as to accomplish the right result.

In following these principles the heavy power equipment sales engineer will eventually encounter many of the following questions:[1]

1. Is the customer in the market for the product?
2. Under the existing circumstances, what person would it be best to see when visiting the customer?
3. How do you interest the prospect in the product?
4. How can you explain technical information to a non-technical man, such as a purchasing agent, or vice-president?
5. How do you find out whether a prospect's financial credit is sound?
6. What can you talk about with an official who knows nothing about the sale you are trying to make?
7. How can a young sales engineer hope to have his story heard by an older man of experience and standing?
8. What if your customer has no time to see you?
9. What can you do if the customer says he is not interested in your product?
10. What if your price is high?
11. What if the delivery of your product takes longer than that of your competitor?
12. How can you correct a customer without offending

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[1] Lester, Bernard, Sales Engineering, J. Wiley and Sons, 1940.

him when he makes false statements about your company or your product?

13. How can you obtain business from a prospect who sells products to your competitors and sells nothing to your company?

14. How can you find out what your competitor's prices are?

15. How can you re-establish your position with a customer who has had trouble with your apparatus?

16. How can you explain a delay in delivery to a customer who has become indignant?

17. How can you solve a technical problem in the presence of a customer without going back to your office to figure it out, without interruption?

When a sales engineer can master these situations, he will have gone a long way towards solving the selling problems of heavy power equipment. From the writer's experience in the Boston area, not only are all of these factors encountered, buy many of them are an every day problem.

The trite recommendation of a seasoned salesman "know your customer, yourself, and your product" is in actuality the foundation of the establishment of a favorable relationship with the customer. Based on this relationship, the sales engineer uses sales reasons and advantages relating to: 1/

1. The equipment itself.
2. Conditions of sale, price, delivery, installation etc.

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1. Lester, Bernard, Sales Engineering, J. Wiley and Sons, 1940.

3. Trade relationships between buyer and seller.

4. The supplier's ability to furnish technical assistance in an apparatus application or maintenance. Any factors relating to service.

5. The overall reputation and policies of the supplier.

In organizing for efficient heavy power equipment marketing, the vendor must set up his sales division to devote maximum effort to sales. By this we mean the sales engineers and staff must plan to utilize their time and energy to producing the best results. It is up to the sales managers to see that customers are selected so that the bulk of the firm's selling activities are concentrated on the company's most valuable prospects or the ones that have the possibilities of becoming valuable. The chart on the next page shows the classification of sales and customers of a particular producer, according to various size groups, the groups being based on sales. This chart shows the total sales of the company and this includes their small equipment, also. Almost all heavy equipment manufacturers also carry a line of smaller industrial machinery. Allis-Chalmers manufactures and sells; small motors, pumps, compressors, and v-belt drives. Worthington and Ingersoll-Rand make small pumps and compressors and other small mechanical equipment. General Electric and Westinghouse make small motors, starters, generators, etc. These manufacturers have found this diversification a stabilizing influence in their companies and they have also found that small products sell large products. Nevertheless, from this table it is quite apparent that the volume sales of the company come from the large sales and this is where sales effort can be economically concentrated. As a matter of fact, most of these manufacturers use dealer organizations, supply houses, small equipment

salesmen, and special merchandising methods to cut down sales time on this small apparatus.

Other methods, such as a lost time analysis for salesmen, are used to discover methods to devote maximum effort to sales. [1] Good sales engineers and managers are constantly looking for ways in which to eliminate the office and extraneous work from the salesman's routine, so that he can spend more time in actual productive selling.

In organizing for successful selling of heavy power equipment, the vendor must adapt himself to the customer's point of view. One of the best psychological tricks in selling is for the vendor to place himself in the position of the buyer. Assuming this condition the seller can then consider his sales arguments and the corresponding interests of the purchaser which are:

1. Results obtainable from the product in the application the buyer intends.
2. The supplier's ability to render the highest degree of performance.
3. The reliability and pleasing personality of the sales engineer acting as the link between the purchaser and the supplier.

Along this same line of thought, the salesman must think more and more of possible savings to his customer such as:

1. Cutting down depreciation due to obsolescence and wear.
2. Cutting down operating costs, upkeep, and maintenance.

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[1] Interview with J. R. Reed, Manager Commercial Research Section, Allis-Chalmers, December 18, 1947.

A

	$0 - 999.99				$100	
	Customers		Sales		Customers	
	No.	%	Sales	% of Total	No.	
ingland Region						
ston	218	67.9	40,620.42	1.2	43	13.
w Haven	56	73.8	12,831.62	4.3	11	14.
ovidence	16	84.2	3,660.40	15.5	2	10.
fic Region						
s Angeles	291	83.9	21,620.28	.6	23	6.
n Francisco	258	81.4	33,480.73	1.4	29	9.
rtland	44	62.9	14,667.11	1.5	10	14.
attle	112	70.0	16,408.24	2.3	28	17.
Spokane	20	54.1	4,779.04	1.2	9	24.
tal	132	67.0	21,187.28	2.0	37	18.
heast Region						
lanta	58	59.2	11,650.68	1.2	18	18
rmingham	11	42.3	2,962.05	.6	2	7
arlotte	69	58.0	20,352.92	.9	22	18
attanooga	28	40.1	9,281.38	1.4	23	32
oxville	15	48.4	6,556.79	.3	7	22
mphis	18	47.4	7,177.03	1.1	10	26
ami	14	73.7	3,373.30	8.1	3	15
w Orleans	60	56.0	16,707.31	1,9	22	20
mpa	33	73.3	10,418.09	1.5	3	6
hwest Region						
arillo	15	41.7	6,313.54	.6	5	13
llas	206	76.3	43,227.86	4.1	41	15
uston	102	75.6	17,541.00	1.0	24	17
n Antonio	18	40.9	4,182.24	.8	15	34
reveport	7	77.8	1,844.87	24.5	2	22
lsa	91	82.0	11,788.12	3.5	9	
Oklahoma City	9	90.0	1,778.17	47.4	1	10
tal	100	82.6	13,566.29	4.0	10	
imore	21	56.8	3,950.60	.7	6	1
alo	59	55.7	14,914.98	.9	20	1
chester	24	54.6	7,962.41	1.3	10	2
racuse	17	60.7	3,595.36	4.1	5	1
l	100	56.1	26,472.75	1.1	35	1
ago	477	71.0	88,128.79	.8	83	1
venport	36	55.4	9,855.58	1.2	14	2
ckford	21	67.7	4,308.60	2.8	4	1
l	534	69.5	102,292.97	.8	101	1
innati	180	6[illegible].7	42,327.96	1.7	45	1
arleston	22	51.2	4,893.38	1.4	9	2
l	202	65.3	47,221.34	1.7	54	1
eland	93	58.5	23,218.61	1.2	34	2
ledo	31	62.0	11,662.30	5.5	11	2
l	124	59.4	34,880.91	1.6	45	2
er	32	51.6	11,063.40	1.0	15	2
oit	117	64.6	32,029.49	1.6	28	1
and Rapids	18	42.9	984.01	.5	18	4
ckson	15	65.2	1,981.17	2.3	6	2
l	150	61.0	34,994.67	1.5	52	2
aso	10	55.6	4,730.61	1.5	4	2
oenix	12	44.4	4,298.02	2.4	8	2
l	22	48.9	9,028.63	1.8	12	2
napolis	56	63.6	16,195.86	1.6	11	1
nsville	1	25.0	805.04	.5	..	
uisville	14	46.7	5,263.29	1.3	7	
l	71	58.2	22,264.19	1.4	18	1
s City	53	50.0	15,231.91	1.3	24	
aha	28	48.3	11,252.22	4.4	17	
l	81	49.4	26,484.13	1.8	41	
aukee	239	69.9	51,569.21	2.2	65	
eapolis	90	63.8	30,110.37	2.6	28	
luth	10	47.6	2,006.00	1.5	3	
l	100	61.8	32,116.37	2.5	31	
York	283	55.8	65,897.73	.5	93	
wark	105	79.0	20,495.86	3.1	18	
l	388	60.7	86,393.59	.6	111	
adelphia	145	73.2	33,254.82	.9	26	
rrisburg	7	70.0	1,606.05	2.1	1	
l	152	73.1	34,860.87	1.0	27	
sburgh	103	61.3	21,847.73	.4	31	
eeling	4	57.1	1,053.80	3.0	..	
ngstown	15	46.9	5,176.28	5.1	11	
l	122	58.9	28,077.81	.5	42	
mond	19	48.7	4,199.78	.2	11	
rfolk	8	61.5	3,121.83	10.0	3	
l	27	51.9	7,321.61	.4	14	
Louis	70	56.0	20,715,48	1.0	28	
Lake City	16	61.6	4,980.51	2.0	5	
ington	12	50.0	2,540.51	.2	3	
es-Barre	22	68.8	4,703.03	4.7	4	
.	4254	65.8	915,155.77	1.1	1071	

ANALYSIS OF 1946 SALES BY DISTRICT OFFICE

	$0 - 999.99				$1000.00 - 4999.99				$5000.00 - and over								
	Customers		Sales		Customers		Sales		Customers		Sales		Total Customers	Total New Equipment Sales	Repair Sales	Total New Equip. & Repair Sales	Repair Sales as % of Total
	No.	%	Sales	% of Total	No.	%	Sales	% of Total	No.	%	Sales	% of Total					
New England Region																	
Boston	218	67.9	40,620.42	1.2	43	13.4	116,263.74	3.5	60	18.7	3,126,341.18	95.3	321	3,283,225.34	503,216.73	3,786,442.07	13.3
New Haven	56	73.8	12,831.62	4.3	11	14.4	26,477.83	8.9	9	11.8	259,237.20	86.8	76	298,546.65	38,226.35	336,773.00	11.3
Providence	16	84.2	3,660.40	15.5	2	10.5	2,325.05	9.8	1	5.3	17,671.74	74.7	19	23,657.19	13,827.72	37,484.91	36.9
Pacific Region																	
Los Angeles	291	83.9	21,620.28	.6	23	6.6	53,349.07	1.3	33	9.5	3,811,954.57	98.1	347	3,886,923.92	309,091.19	4,196,015.11	7.4
San Francisco	258	81.4	33,480.73	1.4	29	9.1	60,623.81	2.6	30	9.5	2,277,409.78	96.0	317	2,371,514.32	134,946.50	2,506,460.82	[illegible]
Portland	44	62.9	14,667.11	1.5	10	14.3	24,788.02	2.6	16	22.8	916.673.26	95.9	70	956,128.39	93,663.69	1,049,792.08	[illegible]
Seattle	112	70.0	16,408.24	2.3	28	17.5	73,591.01	10.4	20	12.5	614,853.29	87.3	160	704.852.54	85,617.18	790,469.72	10.8
Spokane	20	54.1	4,779.04	1.2	9	24.3	19,984.73	5.4	8	21.6	347,802.08	93.4	37	372,565.85	35,317.35	407,883.20	8.7
Total	132	67.0	21,187.28	2.0	37	18.8	93,575.74	8.7	28	14.2	962,655.37	89.3	197	1,077,418.39	120,934.53	1,198,352.92	10.1
Southeast Region																	
Atlanta	58	59.2	11,650.68	1.2	18	18.4	32,368.33	3.3	22	22.4	926,892.23	95.5	98	970,911.24	83,415.93	1,054,327.17	7.9
Birmingham	11	42.3	2,962.05	.6	2	7.7	5,182.15	1.0	13	50.0	493.447.84	98.4	26	501,592.04	80,438.72	582,030.76	13.8
Charlotte	69	58.0	20,352.92	.9	22	18.5	60,802.63	2.6	28	23.5	2,302,860.37	96.5	119	2,384,015.92	138,660.39	2,522,676.31	5.5
Chattanooga	28	40.1	9,281.38	1.4	23	32.8	59,178.91	8.8	19	27.1	603,463.83	89.8	70	671,924.12	66,662.37	738,586.49	9.0
Knoxville	15	48.4	6,556.79	.3	7	22.6	15,853.97	.8	9	29.0	1,975,306.45	98.9	31	1,997,717.21	86,089.01	2,083,806.22	4.1
Memphis	18	47.4	7,177.03	1.1	10	26.3	28,708.02	4.3	10	26.3	630,243.78	94.6	38	666,128.83	62,296.35	728,425.18	8.5
Miami	14	73.7	3,373.30	8.1	3	15,8	3,899.35	9.3	2	10.5	34,545.10	82.6	19	41,817.75	7,360.33	49,178.08	14.9
New Orleans	60	56.0	16,707.31	1,9	22	20.6	62,628.38	7.0	25	23.4	816,671.09	91.1	107	896,006.78	152,214.03	1,048,220.81	14.5
Tampa	33	73.3	10,418.09	1.5	3	6.7	7,830.99	1.1	9	20.0	687,833.11	97.4	45	706,082.19	114,065.36	820,147.55	13.9
Southwest Region																	
Amarillo	15	41.7	6,313.54	.6	5	13.9	14.174.70	1.3	16	44.4	1,088,816.34	98.1	36	1,109,304.58	13,948.74	1,123,253.32	1.2
Dallas	206	76.3	43,227.86	4.1	41	15.2	92,058.47	8.8	23	8.5	906,806.83	87.1	270	1,042,093.16	131,388.10	1,173,481.26	11.2
Houston	102	75.6	17,541.00	1.0	24	17.8	64,566.71	4.0	9	6.6	1,550,637.18	95.0	135	1,632,744.89	179,296.87	1,812,041.76	9.9
San Antonio	18	40.9	4,182.24	.8	15	34.1	30,882.93	5.7	11	25.0	501,602.87	93.5	44	536,668.04	45,993.37	582,661.41	7.9
Shreveport	7	77.8	1,844.87	24.5	2	22.2	5.640.72	75.5	--	--	---	--	9	7,485.59	9,577.25	17,062.84	55.9
Tulsa	91	82.0	11,788.12	3.5	9	8.1	16,761.07	5.0	11	9.9	308,971.55	3.5	111	337,520.74	73,456.36	410,977.10	17.9
Oklahoma City	9	90.0	1,778.17	47.4	1	10.0	1,970.04	52.6	--	--	---	--	10	3,748.21	3,601.87	7,350.08	49.3
Total	100	82.6	13,566.29	4.0	10	8.3	18,731.11	5.5	11	9.1	308,971.55	90.5	121	341,268.95	77,058.23	418,327.18	18.4
Baltimore	21	56.8	3,950.60	.7	6	16.2	10,333.73	1.8	10	27.0	563,934.68	97.5	37	578,219.01	46,420.55	624,639.56	7.4
Buffalo	59	55.7	14,914.98	.9	20	18.9	48,455.30	2.9	27	25.4	1,608,360.64	96.2	106	1,671,730.92	204,695.35	1,876,426.27	10.9
Rochester	24	54.6	7,962.41	1.3	10	22.7	20,989.35	3.4	10	22.7	586,654.64	95.3	44	615,606.40	28,329.77	643,936.17	4.6
Syracuse	17	60.7	3,595.36	4.1	5	17.9	9,698.74	10.9	6	21.4	75,635.08	85.0	28	88,929.18	40,644.72	129,573.90	31.4
Total	100	56.1	26,472.75	1.1	35	19.7	79,143.39	3.3	43	24.2	2,270,650.36	95.6	178	2,376,266.50	273,669.84	2,649,936.34	10.3
Chicago	477	71.0	88,128.79	.8	83	12.4	189,323.15	1.6	112	16.5	11,174,104.76	97.6	672	11,451,556.70	1,346,626.11	12,798,182.81	10.5
Davenport	36	55.4	9,855.58	1.2	14	21.5	41,743.85	4.9	15	23.1	807,784.14	93.9	65	859,383.57	100,377.91	959,761.48	10.5
Rockford	21	67.7	4,308.60	2.8	4	12.9	10,053.27	6.5	6	19.4	140,513.84	90.7	31	154,875.71	13,086.83	167,962.54	7.7
Total	534	69.5	102,292.97	.8	101	13.2	241,120.27	1.9	133	17.3	12,122,402.74	97.3	768	12,465,815.98	1,460,090.85	13,925,906.83	10.5
Cincinnati	180	67.7	42,327.96	1.7	45	16.9	108,292.29	4.4	41	15.4	2,332,143.04	93.9	266	2,482,763.29	165,147.41	2,647,910.70	6.2
Charleston	22	51.2	4,893.38	1.4	9	20.9	16,337.03	4.9	12	27.9	314,140.33	93.7	43	335,370.74	126,757.93	462,128.67	27.4
Total	202	65.3	47,221.34	1.7	54	17.5	124,629.32	4.4	53	17.2	2,646,283.37	93.9	309	2,818,134.03	291,905.34	3,110,039.37	9.4
Cleveland	93	58.5	23,218.61	1.2	34	21.4	77,889.13	4.1	32	20.1	1,819,804.93	94.7	159	1,920,912.67	288,952.86	2,209,865.53	13.1
Toledo	31	62.0	11,662.30	5.5	11	22.0	26,017.52	12.2	8	16.0	175,575.25	82.3	50	213,255.07	85,387.00	298,642.07	28.6
Total	124	59.4	34,880.91	1.6	45	21.5	103,906.65	4.9	40	19.1	1,995,380.18	93.5	209	2,134,167.74	374,339.86	2,508,507.60	14.9
Denver	32	51.6	11,063.40	1.0	15	24.2	42,637.92	3.8	15	24.2	1,063,547.31	95.2	62	1,117,248.63	71,619.14	1,188,867.77	6.0
Detroit	117	64.6	32,029.49	1.6	28	15.5	78,823.04	3.9	36	19.9	1,912,223.05	94.5	181	2,023,075.58	286,355.36	2,309,430.94	12.4
Grand Rapids	18	42.9	984.01	.5	18	42.9	48,438.34	22.4	6	14.2	166,420.78	77.1	42	215,843.13	117,262.18	333,105.31	35.2
Jackson	15	65.2	1,981.17	2.3	6	26.1	19,205.82	22.1	2	8.7	65,919.50	75.6	23	87,106.49	33,932.27	121,038.76	28.0
Total	150	61.0	34,994.67	1.5	52	21.1	146,467.20	6.3	44	17.9	2,144,563.33	92.2	246	2,326,025.20	437,549.81	2,763,575.01	18.8
El Paso	10	55.6	4,730.61	1.5	4	22.2	10,784.57	3.4	4	22.2	299,293.81	95.1	18	314,808.99	59,956.86	374,765.85	16.0
Phoenix	12	44.4	4,298.02	2.4	8	29.7	24,864.90	14.1	7	25.9	147,947.03	83.5	27	177,109.95	89,241.98	266,351.93	33.5
Total	22	48.9	9,028.63	1.8	12	26.7	35,649.47	7.2	11	24.4	447,240.84	91.0	45	491,918.94	149,198.84	641,117.78	23.3
Indianapolis	56	63.6	16,195.86	1.6	11	12.5	25,329.62	2.4	21	23.9	1,002,291.94	96.0	88	1,043,817.42	98,557.69	1,142,375.11	8.6
Evansville	1	25.0	805.04	.5	..	....	....	....	3	75.0	136,074.26	99.5	4	136,879.30	9,405.92	146,285.22	6.4
Louisville	14	46.7	5,263.29	1.3	7	23.3	19,044.32	4.6	9	30.0	386,597.09	94.1	30	410,904.70	95,964.15	506,868.85	18.9
Total	71	58.2	22,264.19	1.4	18	14.8	44,373.94	2.8	33	27.0	1,524,963.29	95.8	122	1,591,601.42	203,927.76	1,795,529.18	11.4
Kansas City	53	50.0	15,231.91	1.3	24	22.6	59,736.60	5.1	29	27.4	1,106,081.61	93.6	106	1,181,050.12	107,045.70	1,288,095.82	8.3
Omaha	28	48.3	11,252.22	4.4	17	29.3	39,397.50	15.2	13	22.4	208,084.82	80.4	58	258,734.54	38,690.74	297,425.28	13.0
Total	81	49.4	26,484.13	1.8	41	25.0	99,134.10	6.9	42	25.6	1,314,166.43	91.3	164	1,439,784.66	145,736.44	1,585,521.10	9.2
Milwaukee	239	69.9	51,569.21	2.2	65	19.0	156,833.22	6.5	38	11.1	2,194,714.59	91.3	342	2,403,117.02	454,381.37	2,857,498.39	15.9
Minneapolis	90	63.8	30,110.37	2.6	28	19.9	66,653.75	5.8	23	16.3	1,051,315.06	91.6	141	1,148,079.18	173,429.54	1,321,508.72	13.1
Duluth	10	47.6	2,006.00	1.5	3	14.3	6,958.25	5.0	8	38.1	129,056.71	93.5	21	138,020.96	75,841.64	213,862.60	35.5
Total	100	61.8	32,116.37	2.5	31	19.1	73,612.00	5.7	31	19.1	1,180,371.77	91.8	162	1,286,100.14	249,271.18	1,535,371.32	16.2
New York	283	55.8	65,897.73	.5	93	18.3	242,136.28	1.9	131	25.9	12,528,098.55	97.6	507	12,836,132.56	879,135.78	13,715,268.34	6.4
Newark	105	79.0	20,495.86	3.1	18	13.5	39,862.37	6.1	10	7.5	598,270.81	90.8	133	658,629.04	40,882.45	699,511.49	5.8
Total	388	60.7	86,393.59	.6	111	17.3	281,998.65	2.1	141	22.0	13,126,369.36	97.3	640	13,494,761.60	920,018.23	14,414,779.83	6.4
Philadelphia	145	73.2	33,254.82	.9	26	13.1	67,172.84	1.9	27	13.7	3,488,296.58	97.2	198	3,588,724.24	383,836.77	3,972,561.01	9.7
Harrisburg	7	70.0	1,606.05	2.1	1	10.0	3,083.43	4.0	2	20.0	71,876.95	93.9	10	76,566.43	65,508.23	142,074.66	46.1
Total	152	73.1	34,860.87	1.0	27	13.0	70,256.27	1.9	29	13.9	3,560,173.53	97.1	208	3,665,290.67	449,345.00	4,114,635.67	10.9
Pittsburgh	103	61.3	21,847.73	.4	31	18.5	82,422.48	1.7	34	20.2	4,903,738.68	97.9	168	5,008,008.89	282,305.31	5,290,314.20	5.3
Wheeling	4	57.1	1,053.80	3.0	..	....	....	....	3	42.9	34,663.31	97.0	7	35,717.11	31,471.58	67,188.69	46.8
Youngstown	15	46.9	5,176.28	5.1	11	34.4	29,992.88	29.3	6	18.7	67,332.23	65.6	32	102,501.39	33,883.11	136,384.50	24.8
Total	122	58.9	28,077.81	.5	42	20.3	112,415.36	2.2	43	20.8	5,005,734.22	97.3	207	5,146,227.39	347,660.00	5,493,887.39	6.3
Richmond	19	48.7	4,199.78	.2	11	28.2	20,360.32	1.1	9	23.1	1,879,613.41	98.7	39	1,904,173.51	118,799.94	2,022,973.45	5.9
Norfolk	8	61.5	3,121.83	10.0	3	23.1	5,972.92	19.1	2	15.4	22,201.06	70.9	13	31,295.81	6,582.00	37,877.81	17.2
Total	27	51.9	7,321.61	.4	14	26.9	26,333.24	1.4	11	21.2	1,901,814.47	98.2	52	1,935,469.32	125,381.94	2,060,851.26	6.1
St. Louis	70	56.0	20,715,48	1.0	28	22.4	80,755.95	3.9	27	21.6	1,987,298.55	95.1	125	2,088,769.98	230,480.26	2,319,250.24	9.9
Salt Lake City	16	61.6	4,980.51	2.0	5	19.2	13,443.51	5.5	5	19.2	225,382.82	92.5	26	243,806.84	46,230.24	290,037.08	15.9
Washington	12	50.0	2,540.51	.2	3	12.5	5,265.04	.4	9	37.5	1,247,614.80	99.4	24	1,255,420.35	115,336.62	1,370,756.97	8.4
Wilkes-Barre	22	68.8	4,703.03	4.7	4	12.5	8,636.51	8.5	6	18.7	87,721.83	86.8	32	101,061.37	39,285.63	140,347.00	27.9
TOTAL	4254	65.8	915,155.77	1.1	1071	16.5	2,636,856.37	3.1	1148	17.7	80,810,370.14	95.8	6473	84,362,382.28	8,894,220.66	93,256,602.94	9.5

3. Cutting down original cost and interest on investment by finding less costly installations.

4. Discovering ways for increased earnings due to increased output.

5. Finding ways for increased earnings by selling more dependable units.

6. Finding other benefits that are not easily evaluated.

An Allis-Chalmers sales engineer made himself a friend of a large utility in February of 1948 when he was in a postion to take a large circuit breaker order. He deliberately discovered a much more reasonably priced alternate equipment solution.[1] Needless, to say the customer will not forget this type of service. Another case of a sales engineer thinking in terms of what the purchaser desired is told about the Ingersoll-Rand engineer salesman who in selling large-capacity pumps for water supply quoted prices on equipment installed having a guaranteed rate of operation and maximum cost per unit of work done.[2] The customer who knew the performance he desired and wished to avoid the responsibility of selecting complex equipment gratefully signed the contract.

The last, but not the least, in the elements involved in organizing for selling heavy power machinery is that of promoting sales agressively by selecting and using the best selling tools, and by adopting a sales plan and then having the vision and courage to work the plan. The

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[1] Interview with F. L. Dennis, Engineering Department, Boston Edison Company, February 27, 1948.

[2] Agnew, H. E., and Dale Houghton, Marketing Policies, McGraw-Hill Publishing Company, 1941.

use of sales tools starts with the obtaining of sales leads. These can be purchased from construction reporting services, or dug out from bulletin services, and new construction sections of trade papers. Many companies find that newspaper and clipping bureaus provide valuable leads, while others rely on answers from their trade paper and direct mail advertising. Salesmen in their travels pick up a great percentage of the news of likely prospects.

To consider the other side of the picture a sales tool may also provide information to the buyers. We have already discussed heavy power equipment salesmen, agents, missionary engineers, and also exhibits, trade shows, catalogues, trade papers, direct mail and the other aids in conveying news of the vendor's products to the prospective purchaser.

Almost everything that the vendor's organization does can be considered a sales tool. For instance, the effective and prompt service given by a repair man may be the best sales tool a supplier can use. The sales interview is another element in selling that can be made a sales tool. The interview can be used to obtain technical information or which to base a proposal, or, to submit an engineering plan or layout. It can also be used to straighten out an incorrect invoice or convey information on a new delivery date or to try to conclude a prospective sale. The correct use of the interview as a sales tool can in any case provide a chance for closer relationships between the supplier and buyer.

We have in the previous chapters considered most of the commonly accepted sales tools in advertising and the direct selling of heavy power equipment. One tool that is frequently given too little consideration is the quotation; and yet, this is the most common written correspondence between the vendor and the purchaser. The quotation

should be clear and brief and of an established style. All elements such as terms, delivery, responsibilities, warranties, etc. that are of interest to the buyer should be specifically stated. The responsibilities that the supplier assumes in connection with related products may be important also. Of course, price and point of sale as well as an accurate description are essential. For power installations, a descriptive specification having a detailed list of any exceptions taken to the customers original specification should be included. The addition of illustrations, drawings and list of installations will help the explanatory material. The attractive physical appearance and the clear and direct arrangement of the material will do much to a quotation to make it sell heavy power machinery.

To set up any rules for establishing a sales plan cannot be undertaken here. Possibly the best approach to making such a plan will be gained from examining the past record and lost business reports. The following list of reasons for losing business will indicate changes to be made in a sales plan: 1/

1. Lack of groundwork during the early stages of the negotiation.
2. Failure to reach all persons who have influenced the purchase.
3. Lack of sufficient knowledge of the customer and his problems.
4. Past difficulties with products sold which have not been taken seriously and corrected.

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1. Lester, Bernard, Sales Engineering, J. Wiley and Sons, 1940.

5. Failure to contribute ideas and to render required engineering service to the customer.

6. Poorly planned strategy, lack of patience, diplomacy, or self-control.

7. A weak and unconvincing sales presentation lacking in sufficient detail to convince the customer of the vendor's anxiousness to serve.

8. Failure to furnish a well written proposal which covers every detail in concise and impressive form.

It is obvious that the sales plan for the marketing of heavy power equipment cannot be approached like the solution to a simple empirical formula. The factors of the formula are know, however, and have been discussed in this chapter and the previous ones. To organize and apply these factors and follow them through to a successful sales program is the job of the sales manager, his staff, and the sales engineer.

Chapter IX

CONCLUSION

The heavy power equipment field covers a variety of equipment necessary to the operation of utilities and industrials. The equipment is bulky and costly and during times of activity the market for the equipment for new construction is very large. During the year 1947, more than a billion dollars was spent to build and keep in repair the power generating and distributing facilities of the country. 1/

If this expenditure is prorated on the basis of installed capacity, about 100 million dollars of this would be spent in the New England area. Due to the fact that the headquarters of a number of larger utilities are located in Boston and also this city is the largest one in New England, a very large share of this expenditure would be made in Boston.

The secular trend of power consumption slopes upward. The present position on the cyclical trend in power is also on the upward swing, so that the market for this power equipment has increased rapidly and is going to be as large as it has been for a while longer.

The equipment, itself, is complicated and must be sold, used and maintained by trained personnel who understand the complex problems involved in its application and operation. While heavy power machinery is a type of industrial good, it has been shown in this paper that many of its characteristics differentiate its marketing from that of

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1. Industrial Marketing, Vol. 32, No. 12, Advertising Publications, Inc.

other industrial equipment. Some of these factors were:

1. Small number os customers.
2. Centralization of market.
3. Large physical size of product, and high cost.
4. Large unit price and infrequent purchases.
5. Necessity of all kinds of engineering service.
6. Large number of individuals involved in the purchase and the long periods of negotiation.

In view of the size of the market and the number of rather special features involved in the equipment and its marketing, it seems strange to the writer that he could not locate any written material on this subject, directly. There are a great many texts on industrial marketing, but the special problems involved with heavy machinery are generally not included.

From the writer's experience and interviews with representatives of other power equipment manufacturers who are selling in the Boston area, it has been discovered that the vendors do not give as much attention to marketing procedure and techniques as do other industrial machinery producers.[1] This is partially due to the fact that each sale, even to the same customers, involves different elements and often different personalities. From talking with sales representatives of these power equipment manufacturers, it is evident that they use a selling procedure similar to the one that has been outlined in previous pages.[2] Only one of the five manufacturers interviewed indicated,

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[1] See Appendix B for those interviewed.

[2] Ibid.

however, that his local sales organization was completely cognizant of what he was doing.[1] Three out of the five did consider that their sales division was more or less organized to accomplish certain marketing goals.[2] In general, there appeared to be very little follow-up on the activities of the sales engineers and also little cooperative work between salesmen, and their organizations.

Since heavy power equipment manufacturers are major concerns with many years experience in the field, most of them have equally excellent reputations. Naturally customers have prejudices and preferences as to suppliers, and it is amazing how for these mental attitudes have been carried. One utility in the Boston area bought all their prime movers from one supplier simply since the first order, back in 1900, was placed with this manufacturer.[3] It was not until 1946 that this relationship broke up. The same company also bought all their condensers from one manufacturer, and for that matter, still do, and usually without asking for competitive bids.[4] One municipal has purchased all their station and large distribution equipment from one manufacturer simply because they liked the salesman and thought that his organization was satisfactory.[5] In other cases, however, reciprocity and financial conditions have often been the reason behind the continual placing of certain purchases with one vendor. It is note-

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1. See Appendix B for those interviewed.

2. Ibid.

3. Interview with George Orrok, Ass't Sup't Engineering Department Boston Edison Company, February 17, 1948.

4. Ibid.

5. Interview with Carol Oliver, Ass't Manager Belmont Electric Light, February 25, 1948.

worthy, however, that purchasers in the Boston area seem to stick with a manufacturer after once going to him and securing satisfactory service.[1] Consulting engineers in this area also seem to continue with a manufacturer after once becoming familiar with them, as after they get to know a representative of a vendor, they tend to call on him more and more often for information.[2] This information later goes into specifications which makes it easier for the same manufacturers to again obtain the order.

In the use of salesmen, all of the manufacturers had the same district office set-up in Boston.[3] All had general line salesmen who sold all the products required by the customers assigned to them.[4] All the vendors also used specialists and experts to assist the sales engineers in unusual applications, and special equipment.[5] In training their salesmen, four out of the five had similar training courses, that extended from one to two years in length.[6] They included training in all the product departments and some time spent in the shops and laboratories. All the courses gave prospective salesmen and specialists a choice to choose, with limits, the final jobs

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1. Interview with Leo Nimblett, Manager, Danvers Electric Light.
   " " Paul Dow, P.A. Sylvania Electric Products Co., 2/25/48.
   " " Joseph Price, Sup't Norwood Electric Light Co., 2/26/48.
   " " A.W. Sullivan, Ass't Purchasing Agent, Boston Edison Company, 2/11/48.

2. Interview with W.W. Thompson, Thompson Engineering Company, 12/14/47.
   " " O.M. Fisk, Jackson & Moreland Engineers, 12/8/47.

3. See Appendix B for those interviewed.

4. Ibid.

5. Ibid.

6. Ibid.

jobs that appealed to them. One of the manufacturers worked on an entirely different plant from the others.[1] He started his sales trainees as apprentices and so-called inside men in their district offices. After spending a year or so in the field learning the sales books and procedure, the trainee was sent to the factory for an intensive twelve week course after which time he was a full fledged sales engineer. Only two of the five manufacturers included as a major part of their training a particular course on actual selling and personal attributes. The writer believes that the aims of any training program are:

1. To instill in the salesmen a knowledge of the product he is selling.
2. To teach him techniques of selling.
3. To develop in him a pleasing personality so that he sells himself as well as his product.

It is these last two categories that the training programs, of the manufacturers interviewed, seemed to break down. Also only one manufacturer indicated that they made any special effort to continue to train their new sales engineers in the field, other than giving them routine office assistance. One of the manufacturers did make special mention of the fact that they realized these defects in their student training program and were taking definite steps to correct this.[2]

As far as advertising was concerned, all manufacturers used both direct mail, and trade papers.[3] One of the manufacturers seemed

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[1] See Appendix B for those interviewed.

[2] Interview with J.I. Onarheim, Former District Office Manager & Employment Manager, Allis-Chalmers, January 27, 1948.

[3] See Appendix B for those interviewed.

to trust most of his advertising to the McGraw-Hill Publishing Company.[1] In the heavy power equipment field, there is no question that McGraw-Hill publications are the leaders. But, any magazine in the business of advertising machinery is bound to be somewhat prejudiced as to the benefits of their copy. From the analysis of the advertising found in the leading trade papers in this field it was easy to see that magazines were overcrowded with copy and that too much of the advertising had no particular message and was just institutional in character. To think up ads that will bring in inquiries on products takes much thought, care, and hard work, which was not generally shown.

Considering the advertising from the point of view of the customers, the three municipal utilities answered that they read both direct mail and trade paper advertising.[2] Most of these men have their jobs organized so as to have time to read this material. They also indicated that they take great interest in trade shows and exhibits. The two representatives of the large utility questioned, reported that they received too many direct mail ads to spend too much time on them and they could not take enough time out to really examine the advertising in trade papers.[3] They did appreciate special in-

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[1] Interview with George Johnson, Allis-Chalmers, December 18, 1947.

[2] " " Leo Nimblett, Manager Danvers Electric Light Dept., February 25, 1948.
" " Joseph Price, Sup't Norwood Electric Light Dept., February 26, 1948.
" " Carol Oliver, Ass't Manager Belmont Electric Light, February 25, 1948.

[3] " " F.L. Dennis, Boston Edison Company, February 27, 1948.
" " A.W. Sullivan, Boston Edison Company, February 11, 1948.

formation correctly forwarded on subjects relating to their business. Industrials also receive great quantities of mail ads and when they are correctly addressed to individuals and contain pertinent information, they are well received.[1] All those interviewed appreciated receiving catalogues, either specialized or general depending upon what equipment they used.[2] They felt that it was good judgement on the part of the manufacturer to see that the right people were presented with catalogues and that they were kept up to date by sending of new sheets regularly.[3]

As to sales factors, both sellers and users were in general agreement that the following factors were the most important in the consideration:[4]

1. Performance, efficiency, economy
2. Quality and durability
3. Price
4. Personal factors

The rating of the factors in the scale depended on the purchaser and the vendor and no specific remarks can be made on this subject.

With reference to the characteristics of the sales engineers that stood out as being successful, none of the buyers seemed to have any particularly enlightening suggestions. As L. R. Walter expressed it in his text "Effective Marketing" a good salesman must have.

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1. Interview with Paul Dow, P.A. Sylvania Electric Light, February 25, 1948.
2. See Appendix B for those interviewed.
3. Ibid.
4. Ibid.

"The *Curiosity* of a cat,
The *Tenacity* of a bulldog,
The *Determination* of a taxicab driver,
The *Diplomacy* of a wayward husband,
The *Patience* of a mother,
The *Friendliness* of a child,
The *Enthusiasm* of a chorus girl,
The *Simplicity* of a jack ass,
The *Assurance* of a college sophomore, and
The Persistance of a bill collector"[1]

This concluding chapter has in no way been used to summarize the discussion of previous chapters. The writer has instead presented a summary of his findings from questionnaires and interviews in the Boston area. These results are meaningless unless considered in the light of the discussions presented in previous chapters.

The subject "Marketing of Heavy Power Equipment in the Boston Area", has been covered in this thesis by considering the principles of industrial marketing and then adapting these principles to the characteristics of the heavy power equipment field. In order to gain some first hand field information the subject was restricted to the Boston area. The author believes that with the exception of the special considerations of any local market, the general principles and ideas discussed in this paper would apply in the marketing of this machinery in any part of this country.

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[1] Walter, L. R., *Effective Marketing*, McGraw-Hill Book Company, 1938, Page 52.

APPENDIX A

SURVEY ON ADVERTISING APPEALS

On Page ii will be found the data sheet showing the breakdown of the total number of heavy power equipment ads having certain primary appeals in the magazines considered.

The random method was used in selecting the trade papers, but, as is shown quite a number were used. The author believes that the list is quite representative as it includes trade papers, general business publications, and professional magazines. In most cases several issues of the same magazines were used to eliminate any possible seasonal factor.

The equipment includes, stokers, very large valves, condensers, boilers, large control, blowers, diesels, compressors, deaerators, generators, motors, turbines, diesel engines, switchgear, circuit breakers, transformers and large pumps.

ADVERTISING APPEALS

HEAVY POWER EQUIPMENT – PRIMARY APPEAL

RIMARY PPEALS ↓	MAGAZINES (LEGEND ON NEXT PAGE) 1	2	3	4	5	6	7	8	9	10	11	TOTAL
FFICIENCY	0	18	9	0	2	3	7	4	4	1	12	60
CONOMY	0	16	6	1	6	0	9	1	0	0	16	55
LEXIBILITY	0	7	1	2	0	0	0	0	0	0	0	10
STITUTIONAL (DUCATIONAL)	0	15	17	0	24	10	29	48	36	10	75	260
QUALITY	0	7	1	0	5	3	4	11	4	1	19	55
STRENGTH	0	6	0	0	0	0	0	0	0	0	0	6
DURABILITY	0	4	2	0	0	0	0	0	1	0	1	8
EPENDABILITY	0	14	16	2	11	8	10	15	4	2	10	92
ACCURACY	0	4	1	0	1	1	0	1	0	0	0	8
MAINTENANCE	0	4	6	1	4	2	0	7	1	0	2	22
IMPLICITY	0	4	0	0	0	3	0	0	0	0	0	7
TANDARDIZATION	0	1	0	0	0	1	0	0	1	0	0	3
SERVICE	0	2	0	0	0	3	0	0	0	0	0	5
SAFETY	0	2	3	0	1	1	0	4	0	1	0	12
MADE TO SPECS.	0	3	0	0	0	0	0	2	0	0	0	5
DELIVERY	0	3	4	0	0	0	0	0	0	0	6	14
BSOLESCENCE	0	0	0	0	0	0	0	0	0	0	0	0
												622

LEGEND FOR DATA SHEET ON ADVERTISING APPEALS

1. Nation's Business,	Vol. 35, No. 10,	Published by
	" 35, " 11,	Chamber of Commerce
	" 35, " 12,	
2. Power,	Vol. 91, No. 12	McGraw-Hill Publishing Co.
3. Diesel Progress,	Vol. XIII, No. 11	Diesel Engines Inc.
	" " " 12	
4. Engineering News-Record,	Vol. 139, No. 19	McGraw-Hill Publishing Co.
5. Electric Engineering,	Vol. 66, No. 7	American Institute
	" " " 10	of Electrical Engineering
	" " " 11	
6. Electrical World News Issue,	Vol. 128, No. 6	McGraw-Hill Publishing Co.
	" " " 8	
	" " " 18	
7. Electrical World,	Vol. 128, No. 9	McGraw-Hill Publishing Co.
8. Electrical World,	Vol. 128, No. 3	McGraw-Hill Publishing Co.
	" " " 5	
	" " " 7	
9. Engineering News-Record	Vol. 139, No. 10	McGraw-Hill Publishing Co.
	" " " 22	
	" " " 14	
	" " " 18	
10. Mill & Factory	1947 No. 8	
11. Power	Vol. 91, No. 7	McGraw-Hill Publishing Co.
	" " " 10	
	" " " 11	

APPENDIX B

QUESTIONNAIRES AND INTERVIEWS

A. Sales Manuals

The only questionnaire sent out was the one shown on page (v) which was actually distributed during a sales meeting at the Boston office of the Allis-Chalmers Mfg. Company. This questionnaire was, therefore, actually a form of interview providing for short answers.

It was decided to question only representatives of one company as the writer was familiar with their representatives and could get the comparison of ideas desired without the complication of outside factors. It was also easier to get a picture of the thoughts of sales engineers selling to all types of users of heavy power equipment in the Boston area, rather than possibly getting the opinions of those selling to only one type of prospect.

Those questioned were:

Mr. John Smet
Mr. Sven Osthagen
Mr. Carter Hart
Mr. James Kelso
Mr. Walter Ober
Mr. Ralph Haney
Mr. Russell Porterfield
Mr. Paul Van Ryzin
Mr. Arthur Frost
Mr. Alan Short
Mr. F. E. Brooks, Jr.
Mr. H. O. Wells
Mr. W. G. Denhard

SALES MANUALS-MAKE-UP

What should be in a Sales Manuals?

Should the following items be in your sales manuals?

YES NO

1. Weights and dimensions?
2. Materials and specification of important parts (of the equipment)?
3. Method of application of items of equipment?
4. List of actual results obtained by customers? of just a list of users?
5. Method of manufacturing?
6. Pictures and installation photographs?
7. Brief history of company?
8. Answers to common objections from prospects?
9. Sales talks on Sales points for major products?
10. Combined sales manual and price book?
11. Should sales book be presentable to customer or separate sales aids?
12. Remarks on Sales books, Price books, or Bulletins.

APPENDIX B

INTERVIEWS WITH CUSTOMERS AND CONSULTING ENGINEERS

In the Boston area there are only two large utilities, and they are closely associated. For the purpose of this paper, therefore, the purchasing agent, one electrical and one mechanical engineer were questioned.

To cover the field of the samller utilities, one executive from each of three local municipals were interviewed; one was taken from south of Boston, one from the west side, and one from the northern end to cover the field geographically.

To secure the information from consulting engineers, one large and one small consulting engineer were asked for help.

Only one interview was made on an industrial customer. Any reference made to industrials opinions was from the writer's experience in the Boston area.

Those interviewed were:

F. L. Dennis, Boston Edison Co., Engineer, February 27, 1948.

G. A. Orrok, Boston Edison Co., Ass't Sup't of Engineering, Feb. 17, 1948.

A. W. Sullivan, Boston Edison Co., Ass't Purchasing Agent, Feb. 11, 1948.

L. Nimblett, Danvers Electric Light Co., Manager, Feb. 25, 1948.

C. Oliver, Belmont Electric Light Co., Ass't Manager Feb. 25, 1948.

J. Price, Norwood Electric Light Co., Sup't, Feb. 26, 1948.

O. M. Fisk, Jackson & Moreland Engineers, Engineer, March 8, 1948.

W. W. Thompson, Thompson Engineering Co., President, Dec. 14, 1947.

P. Dow, Sylvania, Electric Products, Ass't Purchasing Agent, Feb. 25, 1948.

Questions asked customers and consulting engineers in interviews

1. What sales factor most important to you?
2. Of what importance is price?
3. Do you respond to direct mail advertising?
4. Who makes decision?
5. Do you go to trade shows and exhibits and what do you think of them?
6. What don't salesmen do that they should do?
7. When a job is lost by a certain firm, why is it lost?
8. Why does one concern stand out as a successful marketer of equipment?
9. Catalogues and information desired by you and what should they contain?
10. What must a salesman know?
11. How does standardization for price effect you?
12. What is value of an engineering progress?

INTERVIEWS WITH SELLERS

The sellers questioned were the "big three" in heavy electrical power equipment, namely Allis-Chalmers, General Electric, and Westinghouse. In the mechanical the corresponding leaders, Allis-Chalmers, Ingersoll-Rand, and Worthington Pump.

Also questioned was one of the few remaining independent heavy equipment selling agents in the Boston area.

Those interviewed were:

Burt Colby,	Allis-Chalmers,	Commercial Research,	Milwaukee,	Dec. 19, '47
George Johnson,	" "	, Advertising Dept.,	"	Dec. 18, '47
Edward Lawler,	" "	" "	"	Dec. 18, '47
J. Onarheim,	" "	Former District Office Manager and Employment Manager		Jan. 27, '48
H. O. Wells,	" "	Sales engineer,	Milwaukee,	Feb. 28, '48
Warren Howard,	General Electric Co.	Sales engineer,		Jan. 26, '48
G. Carlson,	Westinghouse Electric Co.,	Engineer,		Mar. 8, '48
G. D. Maxel,	Ingersoll-Rand Co.,	Sales engineer,		Feb. 25, '48
E. S. Pierce,	Worthington Pump Co.,	Sales engineer,		Mar. 8, '48
J. W. Johnston,	Pittsburgh Transformer Co.,	Agent,		Feb. 23, '48

QUESTIONS ASKED SELLERS IN INTERVIEWS

1. What are your products? who sells them?
2. Who in the organization is most important to the salesman, that is, who is most influential in the purchase?
3. How many others are involved and must they also be sold? How long does it take to get a job?
4. How do your most successful salesmen operate? And what factors are most important for them to sell? What influences the sale?
5. Does advertising and direct mail help your salesmen and how? How about trade shows?
6. What is the training and experience of your salesmen?
7. How does price affect your sales?
8. What catalogues do your salesmen use and other sales aids?
9. How much must your salesmen know and how much can they get from the factory?
10. Do you try to sell what the customer wants or do you convince him that there may be a better solution?
11. What's the story on entertainment?

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Marketing of heavy power equipment in the Boston area.

DATE	ISSUED TO
9/10	Vincent A. Rich
10.25	F. H Graden

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